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The Oil Man's Calendar

FEB. 26–27	American Petroleum Institute, Dallas, Texas.
28	North Texas Oil and Gas Association, Wichita Falls, Texas.
MAR. 5	American Petroleum Institute, Illinois Chapter, Evansville, Indiana.
10	American Petroleum Institute, Los Angeles.
23–25	American Society of Mechanical Engineers, Houston, Texas.
26–27	American Petroleum Institute, Mid-Continent District, Tulsa.
APRIL 9–10	American Petroleum Institute, Eastern District, Pittsburgh.
16–17	National Petroleum Association, Cleveland, Ohio.
21–23	Southwestern Gas Measurement Short Course, Norman, Okla.
21–24	American Association of Petroleum Geologists, Denver, Colorado.
22–24	Petroleum Industry Electrical Association, Shreveport, La.
MAY 13–15	National Gasoline Association, Mayo Hotel, Tulsa.
NOV. 9–13	American Petroleum Institute, Chicago.

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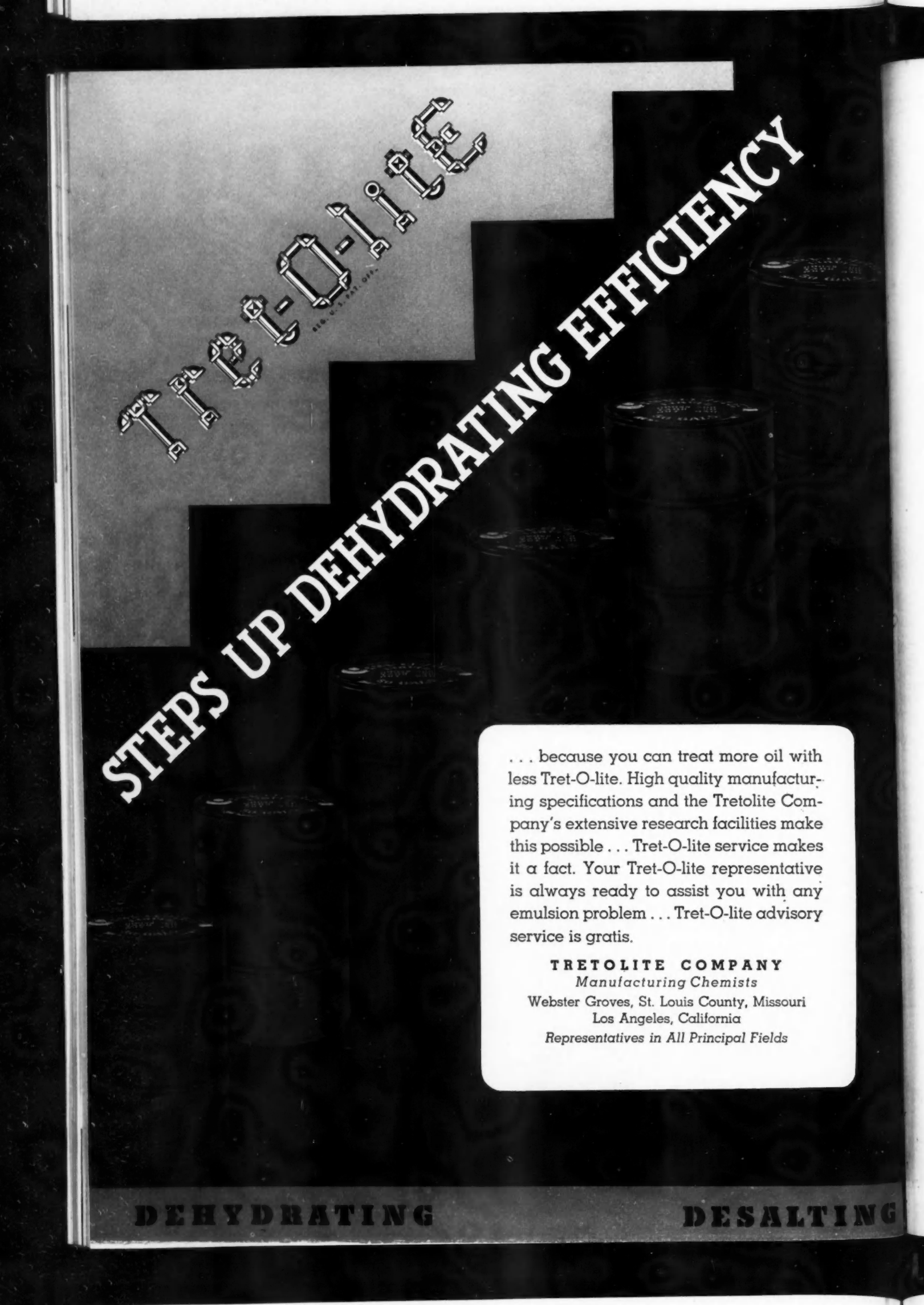
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The Changing Panorama

Distress Gasoline on Gulf Coast Likely

Tanker Situation Presages Serious Surplus While East Has Scarcity

That the industry, especially the Gulf Coast, likely will be confronted with a highly serious distress-gasoline situation within a few months became more apparent last week, when OPC requested that all tankers plying between Gulf Coast ports and the Atlantic Seaboard haul nothing but residual fuel oils.

This action was deemed necessary because of rapid shrinkage of East Coast heavy fuel oil supplies and the urgency of keeping plants in this heavily industrialized region going at top speed. Residual fuel stocks in the East dropped 3,531,000 barrels during January to 8,789,000 barrels.

But despite the logic and need motivating the action, the policy will result in the piling up of gasoline stocks along the Gulf Coast while East Coast motorists suffer for want of the product.

Stocks of gasoline along the Texas-Louisiana Coast the end of January already were at the highest level in history, and had risen 4,683,000 barrels during the past year. Stopping of shipments to the region's largest market plus continued heavy refinery processing as plants work to supply the necessary fuel oil, will enlarge the 21,551,000 barrels currently in storage. Normal Gulf Coast refinery operations result in the making of about 1¾ barrels of gasoline for every barrel of residual fuel oil. Most of the stocks are held by large companies, small independents having profited by heavy lease-lend buying. But indicated conditions could change the independent picture within 30 days. The region has 11,492,000 barrels of residual fuel stocks on hand to meet this suddenly imposed heavy demand, or about 1,500,000 barrels more than a year previous.

This indicated piling up of gasoline stocks on the Gulf Coast also will aggravate the increasingly unfavorable crude-oil market situation of the region (see page 18). During January more than 5 million barrels of crude were added to storage in Texas and Louisiana, the rate of increase averaging 168,000 barrels daily for the two states.

Eastern motorists do not face immediate rationing, there being 19,536,000 barrels of gasoline in storage in that territory, and refineries in the region will be making some gasoline each day. Inventories of gasoline in the East dropped half a million barrels last month because of slower tanker deliveries, and now are but half a million larger than a year ago.

Engineering Committees . . .

As time passes developments indicate that the OPC Conservation Division is due to play a much more important role in the industry's operating practices and that this may result in several significant changes.

The OPC policy of trying to adjust state production quotas on the basis of reserve volumes may be a forerunner to individual field allocations based on similar factors. This may not be far in the future, for the conservation boys currently are making a most detailed study of individual field reservoir conditions and trends, in an attempt to learn optimum flow rates, where production is excessive and where additional output may be obtained without waste.

In making this field optimum-flow-rate study, the OPC Conservation Division has found that little data are available on bottom-hole conditions in most fields—what the decline rate is like, bottom-hole pressure data in general, etc. Under normal proration conditions, when wells are choked considerably, the occasional checks on such conditions (usually semi-annual or annually) were considered sufficient.

Since more complete data of this nature will be essential in order to determine how much a field can produce without damage to the formation, OPC is going to encourage such work as much as possible. And because similar information is needed in filing some of the requests for exceptions to M-68 Conservation Order, operators in many instances are going to do more work of this character.

With the exception of Arkansas, only in those fields where some unitized effort has been made, and where cooperative field engineering committees have been established (such as East Texas, Yates, Goldsmith, etc.) is there any substantial data available on these and other factors. Consequently, members of the OPC Conservation Division are said to be "campaigning" whenever possible for the "committee engineering" idea.

For this reason, the next year may see the formation of many additional local cooperative engineering groups. Moreover, the value of work performed by these committees has been demonstrated to the oil companies in recent years. And now with so many engineers being drafted for military duties that it is becoming difficult in some instances to carry on field engineering work, operators may find additional advantages in such cooperative endeavors.

Orders Were Meant to Restrict Industry

Now Apparent No Definite Annual Drilling Plan To Be Adopted

Some time ago THE OIL WEEKLY, in commenting on M-68 and P-98, said that if the act had been designed to slow down operations, if not halt them altogether, instead of making materials available to the industry, it could not have been better written.

Now it is evident that the purpose of M-68 was just that—to slow down drilling to the minimum. The critical need for materials has hit Washington with terrific impact—materials to build planes and tanks and ships and plants with which to build them. This job makes all other jobs pale into insignificance.

There has been much discussion as to how many wells will have to be drilled. The suggestion has even come from high quarters that maybe the oil industry does not need to drill any wells this year—and

Washington Observations

By RAY L. DUDLEY, Publisher

ANYONE returning from Washington invariably finds an interested group of friends whose first question is, "What is your impression of what is happening there?" and if the returned visitor is an oil man, the next question is, "What do you think of OPC and what is it actually doing?"

Having recently returned we can say to the oil industry that the personnel of OPC is splendid and is literally working itself to death trying to do the job assigned it. We have seen no more patriotic, devoted, or intelligent set of men than those working in OPC. If the results coming out of this office in Washington are not what the industry would like to see, it is not because of the lack of intelligent understanding of the job to be done, nor of long hours. The hours worked by the OPC staff are unbelievably long. The pressure under which these men work is unreasonably high.

They have an understanding of the dire need for raw materials in the building of planes, tanks, ships, and the munitions of war. They also have a first-hand knowledge of the oil industry and the part it must play. They are conscientious. They realize that the desires of the industry for materials must be subordinated when they conflict with the needs of materials for other war purposes—something the industry itself may not yet have come to realize. But at the same time their own intimate knowledge of the oil industry and its workings causes realization on their part that materials must be provided for such oil as the country must have to operate the machines of war.

In this instance they have a distinct advantage over some of the departments with which they must deal—departments headed and operated by men who are not familiar with the oil industry—men who do not understand that wells must be drilled and produced to get the oil necessary—men who still cling to the idea that a "turn of the valve" will do the trick for years to come.

There is a distinct chance that the writer is serving these men in OPC no good turn when he commends them, because commendation from a single industry often only damns the individual complimented in the minds of other departments. There is the danger of suspicion that something sinister is involved when a representative of an industry has a good word for someone in a position to serve it in Washington.

This is in part due to the times in which we live. In part it is due to lack of knowledge of individual industries by the representatives of the Army and Navy whose work has hitherto been along other lines, men who now find themselves involved in a new type of war—a war of production. It is as unfair to condemn these men of the Navy, or the Army, or of the War Production Board as it is for others to condemn those hard working, conscientious men in the Office of Petroleum Coordinator. They, too, have a job of tremendous proportions. They, too, are laboring under the strain of unprecedented need for production of the machinery of war.

It is our thought that the present situation in which OPC acts as an advisory board on petroleum will not continue. There are reports that it is but a matter of time, and the selection of a head for the petroleum division, when it will become a part of Donald Nelson's War Production Board set up. We hope that when that time comes Nelson will avail himself of the intelligent help available from the OPC staff. To discard it would be an act of folly.

maybe not for a long time. This suggestion obviously denotes a state of mind unacquainted with the oil industry and the method in which it supplies oil to the government or public. One gets the distinct idea, also, that the question of civilian consumption, except in certain very essential cases, is not one for very much consideration. The tire situation will take care of some of the reduction necessary—rationing will do the rest if there is a suspicion that it is needed.

Shortly some figures should be available which should go a long way to show just how much drilling will be needed. Until they are digested and the effect of the information on WPB is known, the guess of a driller at Slippery Hollow on how many wells will be drilled is about as good as that of anyone else.

It does seem apparent, however, that there will be no year's program adopted. The program will at most cover only a few months with a wary eye maintained on production of oil to see how it is working.

A good purpose would be served if the industry knew just how many wells or how much footage will be permitted — and where. But this state of uncertainty cannot be blamed upon the petroleum coordinator, who has shown, it must be said in all fairness, a genuine appreciation of the industry's problems.

Meetings Deferred . . .

Few are surprised to learn that the Midyear meeting of the American Petroleum Institute has been called off this year in view of the critical war situation. It was anticipated by many at the annual meeting in San Francisco last November, before Pearl Harbor and the greatly accelerated war production program, that added burdens and lack of time on the part of the industry's key executives would necessitate some "streamlining" of industry meetings.

Suspension of the midyear affair is in line with action previously taken by other organizations which have elected not to meet this year or have greatly reduced meeting time. The industry owned and controlled International Petroleum Exposition at Tulsa earlier elected, after a thorough canvas of oil men and equipment manufacturers, to withhold the exposition scheduled this year.

WASHINGTON ROUNDUP

By B. F. LINZ
Washington Correspondent

OPC Acts on East Coast Fuel Oil Shortage—Recommends Heavier Tank Car Use for Pacific Coast

Soldiers Move to West Indies

WPB Revises M-68 to Cover Use of Equipment Outside of USA

OPA Amends Price Schedule on Refined Product Contracts

THREATS of a new shortage of oil on the East Coast which would necessitate the rationing of gasoline as well as heavy fuel oil and possibly light heating oil were raised last week by a demand of the OPC that all possible transportation facilities be concentrated on the task of providing the fuel oil necessary for the defense industries of the area.

Previously, any rationing action which might be necessary was seen as applied to the oils, rather than to gasoline, but with a further diversion of transport facilities as ordered by the coordinator's office it became apparent that Washington officials were of the belief that if a shortage were inevitable it could easier be borne in civilian motor gasoline rather than industrial and naval fuel oil.

OPA is prepared to move in on the situation any time action becomes necessary, it was disclosed February 13 by Administrator Leon Henderson. Discussing the situation at a press conference, Henderson commended the press for refraining from writing "scarce" stories and warned that such stories in themselves might bring rationing because they aroused fear and encouraged hoarding.

Asked specifically if the price administration was going to ration gasoline, he said: "We do not have a plan to install rationing of gasoline but if the shortage becomes acute and it is so represented to us we know how to do it.

"Fuel oil is low in relation to what we would like to have," he continued. "The restraint which the press has used in discussion of rationing has been very helpful. Scarce stories can do a lot of harm and very often bring along restrictions."

That the companies were fully awake to the situation was demonstrated by a further jump in the use of rail transport, with well over 200,000 barrels a day reaching the seaboard in tank cars during the week ended February 7.

Secretary Morgenthau's view of the depletion deduction as another loophole for avoidance of taxes was challenged by the Independent Petroleum Association (see page 60), which promised the Treasury head that if he pushed his proposal to eliminate the allowance the operators of the country would drop their task of supplying military oil needs and come to Washington to fight for their rights.

Other developments of the week were the disclosure that American troops are guarding the oil installations at Aruba and Curacao, and a WPB order prohibiting the packing of oil products in tin cans after February 28.

Things to watch for:

Orders allocating tetraethyl lead, with little allowed for civilian gasoline;

Moves to expedite further the tanker production program to make up for ship losses:

Several revisions of M-68.

Soldiers at Aruba

The Government on February 12 disclosed that United States soldiers have been sent to the Dutch West Indies to guard the oil installations of Aruba and Curacao, now considered vital to the war effort of the United Nations.

This action comprised the second step to protect Dutch supplies of strategic materials, troops having been assigned to Surinam to guard the bauxite mines.

The decision to extend military protection to the oil centers was in line with President Roosevelt's policy of sending troops wherever their services are needed most, and was announced by the State Department.

"The United States Government at the request of the Netherlands Government has sent a contingent of the United States Army to Curacao and Aruba to assist the Dutch armed forces in the defense of these islands and the oil refineries thereon which are vital to the war effort of the United Nations and to the defense of the Western Hemisphere," the department stated.

"The United States forces will operate under the general supervision of the Governor of Curacao and will be withdrawn upon the termination of the emergency.

"It is understood furthermore that the Venezuelan and The Netherlands governments have reached an agreement whereby the former will cooperate in this defense measure in a manner similar to that agreed upon between the governments of Brazil and The Netherlands in the case of Surinam."

Tanker Convoys

Faced with the possibility that submarine raids upon coastwise shipping may continue indefinitely, officials in Washington were said last week to be considering ways of outwitting the menace which already has destroyed a score of vessels, most of them tankers, in nearby Atlantic waters.

The need for protecting the tanker fleet, seriously depleted by diversions to military services, may necessitate the adoption of the convoy system even though this would tend to slow down deliveries.

Several proposals have been made for dealing with the situa-

tion, including one that oil ships be required to put into harbor every night and hug the coastline as closely as possible by day.

Florida Canal

Construction of a nine-foot barge canal across Florida is proposed by Representative Joseph J. Mansfield of Texas, chairman of the House Rivers and Harbors Committee to provide a water route from the Gulf Coast to the East.

Mansfield called attention to the extensive submarine activity off the Atlantic coast which, he said, may force the movement of oil to the Eastern states by inland routes.

He pointed out that while rail transportation can be used to some extent, its use for all oil products is impossible; the construction of a pipe line would cost $80,000,000 and require much steel badly needed elsewhere, while the canal he proposes could be built for something less than $22,000,000, linking the intracoastal canal running from Corpus Christi to Apalachicola, Florida, with the inland waterway extending from St. Johns River, Florida, to Trenton, New Jersey.

The entire route would be landlocked and safe from sea attack, and oil and products can be moved by wooden barge at low expense, with no steel needed for either the canal or the barges.

House Hearing Called

Members of the oil subcommittee of the House Interstate and Foreign Commerce Committee will make a new survey of the East Coast situation and conditions in the industry generally through hearings which are to open February 17.

First witness at the hearings will be Coordinator Ickes, who is expected to reveal the "various recommendations for action" which he said this week have been submitted at his request by the principal oil companies, to meet the threatened shortage of products along the Atlantic Seaboard. Ickes did not reveal what the companies recommended, but it was indicated he would disclose their suggestions and possibly his own plans for dealing with the transportation shortage when he talks with the House committee. The coordinator explained that he had held a conference with a number of industry officials earlier in the week, at which time he asked for suggestions as to how oil supplies could be augmented. The group drew up some conclusions and later held another meeting in New York, where their associates and experts reviewed the recommendations before they were forwarded to the OPC.

Those from whom Ickes asked advice included William S. Farish and Stuart Coleman, Standard Oil Company (New Jersey); J. Frank Drake, Gulf Oil Corporation; H. F. Sinclair, Consolidated Oil Corporation; J. W. Carnes, Sinclair Refining Company; W. S. S. Rodgers, The Texas Company; R. H. Colley, The Atlantic Refining Company; R. E. Wilson, Pan American Petroleum & Transport Company; B. I. Graves, Tide Water Associated Oil Company; F. A. C. Guspin, Shell Oil Company, and W. D. Mason, Sun Oil Company.

• OPC •

Western Transportation

Extension to the Pacific Coast of the program already operative in the East to stimulate use of railroad tank cars by spreading the additional transportation costs among all the companies, has been ordered by OPC.

In a formal recommendation (No. 35) supplementing the coordinator's appeal to Pacific Coast companies to increase their use of tank cars to offset the shortage of coastwise shipping facilities, OPC directed the transportation committee for District No. 5 to prepare a plan for "the equitable distribution, among all persons affected, of the excess costs of transportation of petroleum and petroleum products in, to, or from the Pacific Coast area by railroad tank cars or other alternative means of transportation, or any combinations thereof, over transportation by tanker under the Maritime Commission charter rate ceilings."

Such plan is to be submitted to OPC in Washington for approval, upon which the committee will be authorized to put it into effect in cooperation with all persons engaged in the industry who are or may be affected by the increase in the cost of transportation.

Fuel Oil Shortage

In an effort to switch the East Coast oil shortage from heavy oils essential to the war program to civilian gasoline, OPC last week called on the companies serving the area to devote their available transportation facilities to the former.

Deputy Coordinator Davies telegraphed officials of 15 companies, calling attention to the steadily deteriorating inventory position of fuel oil and ordering them to take every possible step to correct the situation.

"We consider it important that all tankers and other transportation facilities, scheduled to move gasoline and light products to the East Coast and suitable for conversion, should be immediately transferred to fuel oil service—Gulf-East Coast—and kept in such service until East Coast fuel oil stocks again reach satisfactory levels."

In some quarters, the deputy coordinator's action was seen as forecasting the adoption of rationing for gasoline, supplies of which will be materially curtailed by the concentration on fuel oil, but it was said in oil circles that gasoline stocks on the Atlantic seaboard are somewhat higher than a year ago and may be adequate for such period as is required to rebuild heavy oil supplies, which admittedly are sharply below those of a year ago and falling steadily.

Heavy fuel oil stocks which have accumulated along the Gulf now are some 1,645,000 barrels above last year's level. So plenty is available to meet the immediate increased demand.

Cause of the shortage is the contraction of tankers resulting from the diversion of a very considerable number to war use and the sinking of more than a dozen others by enemy submarines.

In an effort to keep supplies to the necessary level, the companies have resorted to greater use of tank cars and now are moving more oil to the coast by that method than ever before.

The OPC weekly report on the car movement showed that 6935 oil-laden cars moved into the East Coast area during the week ended February 7, compared with 5125 cars the preceding week. The average movement of 991 cars of 222,975 barrels per day was a new

high record, far above the 732 cars of 164,700 barrels reported for the previous week.

Thoroughly awake to the seriousness of the situation, the industry immediately prepared to bolster fuel oil supplies.

The marketing committee for District No. 1 launched a detailed survey of the individual position of each supplier with reference to present inventories and market requirements for the remainder of the heating season, a possible basis for the allocation of future sales if such action becomes necessary.

The Tanker Control Board began a study of the re-allocation of available tonnage among East Coast suppliers as an aid to those which have suffered most heavily from the sinkings. This committee meets in Washington and was expected to take action without delay.

Reports reaching Washington revealed that one of the smaller East Coast refineries has been forced to close down due to lack of crude. Crude stocks on the East Coast are materially below those of a year ago and are being depleted rapidly, and unless additional substantial supplies are received in the near future other refineries will be forced to suspend.

• WPB •

Revise Gas Spacing

Restraints on the development of natural gas supplies were removed last week by the War Production Board through an exemption for the Appalachian area of that provision of Conservation Order M-68 providing for not more than one natural gas well to 640 acres.

The board explained that its order, issued February 13, is designed to develop additional gas supplies for war industries, especially in the large cities of the area.

It provides that in New York, Pennsylvania, West Virginia, Ohio and Kentucky, new wells may be drilled to the Onandaga limestone, Oriskany sandstone or Devonian shale horizons if they follow a uniform spacing pattern of one well to each 160 acres and to other horizons except in a condensate field if they follow a pattern of not more than one well to each 40 surface acres. In either case, however, the drilling of wells is subject to restriction as to the distances between wells and drilling units.

Foreign M-68

WPB on February 6 issued a revision of Conservation Order M-68, applying its restrictions to companies purchasing material and equipment for use outside of the United States, its territories or possessions. The order, in effect, requires that companies seeking materials for developments abroad shall comply with the provisions of M-68 restricting the use of material for development work to oil fields on a 40-acre basis and to gas fields on the basis of 1 well to 640 acres.

The board called attention to the fact that the provision of P-98 apply only to operations in the United States and that priority assistance for foreign development is afforded under P-98-A.

Priorities for Canada

Extension to Canadian firms of priority assistance on substantially the same basis as United States applicants was provided for last week by WPB as a move toward coordinating the war efforts of the two countries.

The board ruled that hereafter, Canadian firms purchasing materials or products in this country for war or essential civilian use may apply priority ratings in accordance with the terms of all appropriate general preference rating orders, or may submit individual applications for priority assistance.

In line with the ruling, an amendment to the repair and maintenance order, P-100, was issued, permitting Canadian firms to take advantage of its provisions. Any Canadian firm to which a copy of the order is issued may use the A-10 rating on purchase orders placed with United States suppliers for repair, maintenance or operating supplies not procurable in Canada.

Arrangements are being made between the two governments to insure that substantially the same enforcement and compliance controls are made effective, and that substantially the same restrictions are placed on the use of scarce materials in both countries. To facilitate the handling of Canadian priority applications, a United States priorities specialist will be assigned to the Department of Munitions and Supply at Ottawa, who will receive and forward to Washington the applications of Canadian firms.

Oil Cans Out

Use of tin cans for the handling of petroleum products will be eliminated at the end of February under orders issued by WPB February 12 designed to reduce the national consumption of tin from 40,000 to 24,500 tons a year.

The orders will permit the use of cans only for products which cannot be handled otherwise, cutting out the use of tin for a number of commodities including baked beans as well as oil.

For the remainder of February, the use of tin cans for petroleum products is to be reduced by 50 percent, after which it will be discontinued entirely, but this and other restrictions of the order will not apply to purchase orders bearing a higher than A-2 rating, which will enable the packing of oil and other products for military and lend-lease use.

Export Drum Control

In order to conserve steel stocks in this country, the board of economic warfare of the Office of Export Control announced new controls last week on the exportation of metal drums and containers, filled or unfilled, for oil, gas and other products, effective February 20.

Such exports will be authorized under general license only to Canada, Great Britain and Northern Ireland, Newfoundland, Greenland and Iceland, but licenses will be issued for filled containers of less than 30 gallons to authorized destinations in the above and certain other areas occupied by British forces.

• OPA •

Contract Prices

An amendment to Price Schedule No. 88, issued February 2, will permit maintenance until March 1 of prices for domestic sales of oil products under contracts signed prior to November 10, 1941, and for export sales covered by con-

tracts signed prior to January 20, 1942.

In issuing the amendment, the Office of Price Administration explained that the maximum prices for oil are not affected, but the amendment restores temporarily the prices of refined products to the basis outlined in the general letter of January 17.

On other than contract sales, the revision provides that the maximum price of each product is to be the lowest quoted price published as of November 7, but when prices cannot be determined by the posted quotations, sellers are permitted to sell such products at the market prices prevailing at the time of sale, providing that notice of such prices or sales are furnished to OPA within 10 days after the sales.

"The amendment," it was explained, "was issued as a result of conferences of Henderson's office with representatives of Petroleum Coordinator Harold L. Ickes' petroleum industry war council.

"Mr. Ickes suggested a temporary deferment of Price Schedule No. 88, issued February 2, last, and setting ceiling prices generally at the October 1, 1941, level, insofar as it affects delivery of refined products under certain contracts. This deferment will give the industry time to adjust its price structure so as to comply with the maximum prices issued February 2."

• PIWC •

Industry Program

The oil industry, awake to its war responsibilities as far back as last summer, is well advanced on its program to assure the supply of all the products needed for military, maritime and essential civilian services, it was declared February 10 by William R. Boyd, Jr., chairman of the Petroleum Industry War Council.

"At the end of World War I, Lord Curzon declared: 'The Allies floated to victory on a sea of oil,'" Boyd said. "The petroleum industry of America, in this hour of national danger, has pledged that everything it possesses, and all of the abilities of its personnel, shall be concentrated upon assuring an identical consummation of World War II.

"The President has asked for 185,000 planes in two years, and for 120,000 tanks and 18,000,000 tons of shipping. The oil industry is solemnly aware that not one of these planes can leave the ground, not one of these tanks can go into battle, and few of these ships can leave their port without the petroleum products to make their engines go.

"It is therefore our responsibility to guarantee that no plane, no tank action for lack of oil. We wholeheartedly accept this responsibility. We will do the job."

Marked advances have been made in increasing the production of 100-octane aviation gasoline under a dual program entailing immediate increases in the capacity of existing facilities and the quickest possible completion of new plants and additions, Boyd declared.

"Both phases of the program have progressed with gratifying speed," he said.

"The 100-octane program, however, has not been the only theatre of activity. It has been necessary for the industry to produce huge amounts of other qualities of gasoline for aircraft and motorized land equipment, special lubricants for military use; diesel and bunker oil for ships; and industrial oils for war industries.

"Having produced these products, the industry's problem has then been to move them to the places where they were needed, when they were needed. This has been a formidable undertaking, especially in view of the diversion of tankers to military service, the slowing of ship movements in consequence of war conditions, and the recent sinking of tankers by enemy action.

"The industry has, therefore, with the effective assistance of the coordinator, virtually made over its transportation system, which had been many years in the making. Tank cars have been pressed into service to unprecedented degree, despite the much greater cost as compared with water shipping; new pipe lines have been built and old ones have been extended and brought to higher efficiency; trucks and barges have been called upon as never before."

To Protect Properties

Activities of the national and regional committees which for the past 14 months have been working on the safeguarding of oil storage will be absorbed by the war council's committee on protection of petroleum facilities, set up at the February meeting, it was disclosed February 12 by Chairman William R. Boyd, Jr.

The committee will headquarter in New York, where its work will be supervised by David V. Stroop, executive secretary, assisted by Harry N. Blakeslee, and will develop a comprehensive organization and program designed, Boyd said, to centralize as well as to facilitate and expedite the industry's cooperation with the Army and Navy and other national agencies concerned with the war-time protection of petroleum industry facilities.

Chairman of the committee is W. S. Farish, president of Standard Oil Company (New Jersey), other members being Frank Buttram, Independent Petroleum Association; Henry M. Dawes, Pure Oil Company; W. H. Ferguson, Continental Oil Company; George A. Hill, Jr., Houston Oil Company of Texas; J. C. Hunter, Mid-Continent Oil and Gas Association; N. C. McGowen, United Gas Pipeline Company; W. S. S. Rodgers, The Texas Company; N. H. Weber, National Petroleum Association; H. D. Collier, Standard Oil Company (California); J. Frank Drake, Gulf Oil Corporation; C. L. Henderson, Vickers Petroleum Company; Dana Hogan, Hogan Petroleum Company; B. L. Majewski, Deep Rock Oil Corporation; J. Howard Pew, Sun Oil Company; W. G. Skelly, Skelly Oil Company, and R. E. Wilson, Pan-American Petroleum and Transport Company.

WANTED PETROLEUM LEADERSHIP

By RAY L. DUDLEY, Publisher, The Oil Weekly

A speech before the annual meeting of the Petroleum Division, American Institute of Mining and Metallurgical Engineers, New York, February 12

ONE but needs a few days in Washington to realize that the evil day some have feared to be in store for the oil industry has already arrived.

It is no false alarm to say that in a time when our industry is most needed in the vital work of helping to save our country, official Washington is filled with men in high places, both elective and appointive, who suspect every statement of fact coming from those acquainted with or engaged in the oil industry — and it needs but little imagination to see that this attitude on their part not only spells ruin to this industry, but ultimate disaster to our nation.

There will, of course, be many who will say that these words are but the mouthings of hysteria. There were those in France who refused to accept the fall of France as anything but the result of communistic cancer, yet we from our perspective of several thousand miles know that leadership as well as following in France caused her fall—that complacency, selfishness and communism all played their deadly part in the destruction of a nation.

And here in America, where it can happen, it must not happen.

Only a regeneration and leadership offer themselves as a solution with which we can work.

First, let us consider what is meant by leadership:

As I understand the term a leader is one of a group who by reason of ability and position is recognized as a speaker for that group, and as an outstanding figure in influencing the action of the group. To be a leader requires that one must either speak the common thought of the group, or that he must have sufficient standing or personality to sway the thinking of the group. And finally, leadership to be effective, must be translated into terms of action looking to the common good.

By the common good I mean an aim which must be beneficial to the group and to the vast body of the public served by the group. When this definition of leadership is understood, at once it must be recognized that in our industry there is a definite lack of unanimity of thinking — many definite cross currents of aims and interests.

Not only are there definite cross currents of interest among the operators in different branches of the industry, but for reasons I shall touch upon, there is actual and active antagonism between branches of that great industrial effort operating under the common name of the oil industry.

A person not familiar with our industry would think that at least oil producers should have common interests—and to a certain extent they have, but there are big producers and small producers, producers affiliated with pipe lines and refineries, and producers who feel that they are at the mercy of the pipe lines and refineries, and, therefore, in conflict with other producers fortunate enough to be affiliated with the other branches, or to have production abroad.

Then there are the conflicting elements operating in different states, each sometimes feeling that

the other has secured an unfair advantage.

Now, therefore, between these elements there has been sporadic warfare.

In the refining division of the industry there are the conflicting interests of those who, due to business affiliations, are frequently to be found possessed of more profitable processes and facilities than will be the case of the smaller units. So here again we find the major and the independent in conflict.

And finally, in the marketing branch we find a great many owners of marketing outlets who feel that the rest of the industry is conspiring to put them out of business. To be sure the conduct of many of these owners has been such as to indicate a rather deep-seated dislike for their general source of supply—an antagonism which frankly has been fanned from a spark into a flame by individuals with axes to grind and personal grudges to satisfy.

This, in brief, is a sketchy review of a situation which makes it most difficult for any individual to meet that part of our definition of leadership which contemplates recognition of a person as speaker for the group—group in this instance meaning the oil industry. Such a condition of conflict also mitigates against one individual exercising such influence as to sway the action of the group as a whole.

The underlying factor in this whirlpool of intra-industry conflict is the conception that the personal interest of one individual, or subgroup, is opposed to the interest of the other, and the basis for such feeling is both ignorance and fact.

In ordinary times it would seem hopeless that such divergence of interest could be reconciled, although under present-day methods much of this feeling is but a hangover of old traditions.

In most instances, however, these prejudices are not founded on fact. Many years ago, I wrote a page one editorial daily for a large southwestern newspaper. I found that the public enjoyed the lambasting of an individual, rather than praise of him. But I found, too, that in most instances where I prepared to lambast, a study of the actual situation, a study of both sides, destroyed the lambasting before it was written.

A few nights ago in Washington I expressed to some friends, some of these thoughts and quick as a flash one came back—

"Do you think there will ever be a time when such widely divergent voices as those of Frank Buttram and William S. Farish will harmonize in a common thought?"

And I answered—

"I do—God help them and us all if they do not. They are both men of unquestioned patriotism—of good sense—and the day that they will submerge their conflicting interests in their own common good will come when they see the common fate in store for them—God grant that they may not see it too late."

In truth these be days that are not ordinary days.

For reasons which are not new, there are in America many men of more or less limited vision and talent, who believe that out of their own minds they can conceive a type of government and a plan of economy which will be better for Americans than those under which this country has been developed from a wilderness. Some of these men are opportunists, pure and simple. Some are sincere theorists, their fanaticism on the subject being evidenced more by steady work and pressure than by soap-box oratory.

They have a plan—a nebulous plan, it is true—probably it would be better to say, nebulous plans, but they all look to a system of government ownership which they cloak under the terms of an "ideal state," but which, when tried out abroad, has come to be known as a "socialized state."

Now, an important thing to remember is that these planners are far in a minority in this country, but that they are either in high places or in a position to influence those in high places. They are not necessarily in the saddle, but they are at least leading the horse. The great rank and file of the people are not sympathetic with these ultimate aims, but various groups are in sympathy with some of the immediate suggestions of these planners, and the planners are astute enough to make their progress step by step. To envision to the public their ultimate plans might prove fatal to those plans. It is no new strategy to lead the public by short step after short step to a goal which would have been repugnant in the beginning had it been announced as the ultimate destination.

There is no greater fallacy than the idea that communism must come to us with the blessing and financial sponsorship of Moscow. We have a brand here, all our own, well financed, fronted by the C.I.O., which, by the way, is engaged in the greatest effort ever made against the oil industry.

Does anyone of intelligence doubt the existence of this picture as I have conservatively painted it? If he does, then he is not a student of legislation as it has been enacted during the past 12 years; nor is he acquainted with how the various blocks of the people have accepted one step as beneficial, and another step because to object to it might be to cause the loss of fancied gains; nor is he acquainted with what is happening in Washington this very minute, or in the refineries of the southwest.

In the path of this moving force, which either may or may not be retarded by the war, lies American industry—its executives, its owners as represented by several million stockholders, and its personnel.

Although the oil industry is but one of these industries which must be shorn of its private ownership characteristics before the ultimate goal is reached, let it fall, and the remainder may surrender without a fight—bow to the inevitable.

Allies Through Ignorance

In the case of the oil industry let us add to this group who would force on us what they conceive to be a better plan of industry, government and life, still another group — allies through ignorance, let us call them.

This additional group is a larger one than the pink planners of plenty. It is a group composed of many officials and private citizens whose conception of the oil industry is an erroneous one, and who may aid the aims of the radical because of their misconception of the oil business and those who operate it.

It is no new thought that the public has gained its conception of oil men and the dazzling riches of the oil business not from the great mass of oil men, or oil companies, but from the few who have achieved notoriety through their extravagances or their lack of moral sense in dealing with the public or government officials.

Fortunately, we may say, there are few of these. Unfortunately they are the ones who have been publicized, and the net result is that a considerable segment of the public and its official servants consider our industry as one of limitless resources, countless riches, and the leaders as little removed above

the buccaneers who despoiled on the Spanish Main 300 years ago.

The oil industry has already been the target in the initial stages of a national engagement. It came off winner, but today finds itself regimented, rather thoroughly, in our effort for national defense. Our Petroleum Coordinator has pledged us his word that his office will not be continued after the emergency—that the Administration has no ulterior aims at control other than as a wartime measure. I have accepted him at his word. We are at war and wise coordination is necessary.

And let me say at this point that if I felt that the oil industry were attempting to make a good thing out of this war, if I believed that the industry was unwilling to make every sacrifice called upon to make, I would be ashamed to be identified with it in even the humble capacity in which I serve it.

Two Fights at Once

At the same time I would be displaying the mental capacity of a child to believe that common sense can be cast to the wind in an emergency. To those who say that we can fight only one war at a time let me remind you that the man who hunts wolves in the hills of my native state keeps his eyes open for the rattlesnakes which may lie in his path. Coordination, discipline, sacrifice, all are necessary today. They are the least we can give when the young manhood of our country is being called upon to give its life.

That these things rigorously pursued by us all will win the war permits no doubt.

But I am not childish enough to believe that when this war shall have been won, the scheming pinks of Washington will stop their efforts—unless the country has had a complete revulsion of feeling by the close of the war.

Neither you nor I know whether there will be such a shift of national feeling as will retire crackpotism to its proper level in the public estimation. We cannot afford to sit idly by and take our chances.

Leadership and a gallant fight can help to stem the tide.

We have defined leadership and we have dealt with some of the obstacles which lie in its path—with some but not all.

The oil industry is filled with men who possess the talents of leadership — personality, training and brains. Among these men integrity is not lacking.

We have noted that among the obstacles in the way of leadership is the fact that almost any leader might find himself and his company accused of having a special interest to serve.

Obstacle to Leadership

But the greatest obstacle to leadership as we see it, is the fact that our natural leaders are but hired representatives of thousands and tens of thousands of stockholders. A man might be willing to jeopardize his own fortune by taking a bold stand, by saying that which needs to be said, by running the risk of persecution which might easily follow, but he is unwilling to take such chances with the fortunes and savings of others.

And well we might add, "Is he to blame?"

Is he?

We are not alone in our opinion that if the oil industry survives more than mere government control, it will do so by such house cleaning as will weld it into a fighting front, and then by a real fight, acquaint the public with the necessity of its maintenance as a non-socialized industry.

This will require leadership, both to develop the common front and to present the story. Facts enough there are to make the story effective. But without leadership the future is dismal.

What is this dismal future in terms of that which will happen to these stockholders whose holdings we fear to jeopardize through leadership? Ultimately a loss of all.

A loss to the small independent and a loss to the major company stockholder alike; not necessarily a total loss at one fell blow, but a steady loss through attrition which is just as fatal—and the possibility of a quick, almost total loss, is not inconceivable.

Can leadership be achieved without regeneration?

I am no crusader—I am only a common citizen who believes in the American way I have seen succeed, then stall, then begin to fall victim to Marxist theorists.

We do need a regeneration—call it what you will. Human nature does not change, I know—but on the day after Pearl Harbor I say a country undergo the exaltation of such unity as it has never seen before, nor since. A common cause was found—and it brushed away, at least temporarily, the clouds of dissention. That they may have returned is due to sefishness and a deep-seated intent on the part of some to take advantage of the political opportunities of war. That they may vanish again before some terrible blow is not impossible.

Industry Faces Blow

The oil industry faces a blow which, unless warded off, will mean ultimate destruction of one of the things for which we fight.

Do I have in mind a concrete step under leadership?

I do.

That step is public understanding. It *can* be achieved, at least in good part—but not in a day, not in a month nor a year. We should have been well along the road to it by now—but failure to realize its importance, failure on the part of our leaders to understand how it can be accomplished, are responsible for at least a substantial part of our plight.

Taken by and large, the people of this America of ours are a fine, decent lot. They are entitled to the truth. They are entitled to that truth as it lays and without it they are misled. The American people do not respect the man who has no proven word in his own defense. They *suspect* him.

And so I plead for greater courage, for more fortitude, for greater unselfishness, for leadership in an industry which has been pre-eminently American, and for an intelligent understanding of that industry on the part of the American public—the last bulwark against the isms which are attempting to destroy the world.

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State Production Rates

Must Be Adjusted With Care

By WARREN L. BAKER, Editor

MAJOR adjustments in January crude-oil production allocations coupled with changing market-demand reaction to war developments, have developed a series of disturbing and erratic influences on the situation. Some regions are adding heavily to storage while others are withdrawing substantially. During January, Texas, most important beneficiary of increased producing rates, added oil to storage at an exceptionally rapid rate although production did not advance in keeping with its raised allocation. California and New Mexico, other recipients of enlarged January production quotas, likewise were increasing stocks. In Oklahoma and Illinois, continued decreases in production resulted in inventories being reduced sharply.

Industry Endangered

If permitted to continue, the practice of boosting production in regions already adding to storage will endanger the industry's balance. Yet OPC has ignored the situation in fixing February state quotas. Not only was Texas given another increase in production despite being responsible for 75 percent of the national crude stock increase in January, but at the same time production in Oklahoma, the state drawing most heavily on inventories, was curtailed beneath its actual producing rate for January. Therefore, the rate at which Texas adds to oil in storage and Oklahoma withdraws from stocks should be greater this month than in January. Furthermore, although they were adding heavily to storage in January, Louisiana and Arkansas were given increased February quotas. Only in California, Kansas and New Mexico were February allocations adjusted somewhat in keeping with indicated market demand trends. Illinois, where oil is being taken from storage, had its quota reduced, but output in this state had not been up to recommended January levels, and consequently was influenced but slightly.

Admittedly some adjustments were desirable to equalize the burden of proration between states, Texas heretofore having shouldered too large a share while Oklahoma had little curtailment and Illinois produced at full capacity. But experience during the first month of OPC's announced policy of trying to bring production into better relationship with crude reserve volumes of the various states, indicates that serious dislocation looms if future months see OPC making additional sizeable adjustments in state producing rates similar to those of January and February. Nothing but chaos would prevail if market demand is further slighted, and refining and transporting companies in some territories are forced to curtail operations or seek new sources far from home, while in other areas refiners and pipe lines are overloaded. Because of steel shortage, it is almost out of the question for refiners currently being shorted by production rate reductions to contemplate tapping other regions with new pipe line systems, and the tank car scarcity restricts use of this expensive method. On the other hand, the detrimental influence of excessive output was demonstrated forcibly to West Texas-New Mexico operators February 10, when a major buyer began taking only 77½ percent of the daily well allowable.

Many Factors Involved

Many are the problems involved in the allocation of production rates to states. While it might be desirable from an equitable conservation standpoint to revise them to conform to crude reserve, this seems impossible without completely dislocating the industry. Moreover, the large number of stripper wells in many regions prevents curtailment of production to levels in keeping with remaining reserve volumes. In addition, the influence of demand must be given full consideration, especially now that the war is disturbing normal movements to the East Coast. Likewise, there are such factors as growing aviation-gasoline and residual-fuel needs to consider. Whereas Texas and Louisiana appear the best sources for additional production of crudes suitable for manufacturing aviation gasoline and residual fuel, these states are handicapped by disrupted deliveries to their largest consuming market.

All these complicated elements, and the drastic changes they probably will undergo during the war, must be weighed carefully in fixing state production quotas — or the industry's stabilization will be wrecked and it cannot fulfill its wartime requirements.

Currently, with the war having already disrupted transportation, it would appear wise to get the oil at the best possible location. Surely, the industry will not suffer immeasurable damage by continuing for a little longer to produce on a market-demand location basis, which has governed its operations since its beginning.

Possible Reserve Influence

Since announcement of February production quotas there has developed a fear that OPC would continue to proceed with its announced policy of revising production rates to levels conforming with crude reserves. Should this premise be imposed:

Texas production quota might increase 740,000 barrels above its February rate to 2,335,000 barrels per day;

Oklahoma allocation would be cut something like 195,000 barrels to 200,000 barrels daily;

Illinois would drop 300,000 barrels to an output of 70,000 barrels;

Kansas would suffer a 105,000 bar-

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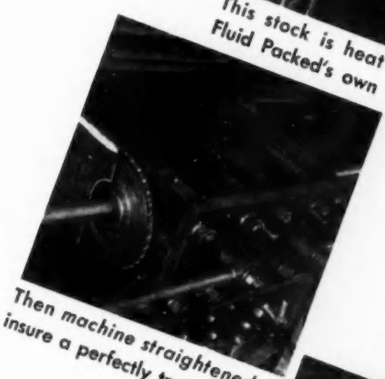

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rel loss, leaving a daily producing rate of but 145,000 barrels;

Louisiana would dip 60,000 barrels to 275,000 barrels;

Even such minor producing and stripper well areas as Pennsylvania, Ohio, Michigan, Indiana and others would be required to take cuts;

California and New Mexico, where oil currently is going into storage, would receive enlarged outputs.

Several states whose production rates have been affected adversely and which would suffer even greater curtailment if OPC continues its January and February program, plan to lodge protests. But it is considered unlikely that OPC will proceed further along this road, for by the end of February it should clearly see indications of the dangers of such a program. Further additional curtailment of production rates in most states would endanger the needed production from stripper wells that cannot financially stand the strain of having their meager output reduced. OPC officials are well aware of this and want to keep these small wells in operation.

Consequently, OPC is not expected to make adjustments of a similar nature when it fixes production rates for March. In fact some indication of an effort to correct January allocations is shown in a few of the February state quotas. The most notable change in keeping with market demand was the curtailment of California production by 14,000 barrels daily, although the state would have been increased on a basis of its crude reserves alone.

Additions to Stocks

Although the national production rate was curtailed only 600 barrels daily by OPC January quotas, actual production for four weeks ended January 31 averaged 21,300 barrels per day less than in the preceding 28 days. Nevertheless, with smaller crude runs to stills, stocks of crude oil in the United States rose at the rate of 225,000 barrels daily during the four weeks period in contrast with 62,750 barrels daily average additions during the preceding four weeks. However, as yet the increase in national crude inventories was not alarming, many having advocated enlargement of stocks in recent months. The disturbing influence was the erratic condition where some regions were adding to storage while others were withdrawing.

Big Texas Stock Gain

Of the national total additions to stocks of 6,300,000 barrels during January, Texas contributed 4,113,000 barrels. Texas was adding crude to storage at 18,215 barrels daily during the four weeks ended January 3, when OPC raised its production quota 93,800 barrels per day. And during the four following weeks, Texas inventories advanced an average of 146,893 barrels daily. Texas also was enlarging refined stocks during this time. Fortunately, Texas production during the four weeks ended January 31 was not in keeping with the 93,800-barrel quota advance, rising but 12,150 barrels daily over the output of the preceding four weeks. Otherwise, the state's rate of stock increase would have been much greater. Of course, part of Texas' troubles were due to disruption of normal tanker deliveries to the Atlantic Seaboard, its largest market. This dislocation of normal market should have been considered when OPC boosted the state's production another 22,500 barrels February 1, making a total of 116,300 barrels during the past two months. With additional tanker sinkings and diversions to the Pacific Coast further slowing deliveries to the East Coast, this new 22,500-barrel advance indicates the state's rate of stock addition during February would be surprisingly high. However, indications are that production will not reach the OPC recommended level. Already, increased output in West Texas has resulted in pipe-line proration, following the addition of 63,822 barrels of oil per day to storage in that region in the four weeks ended January 31. Much oil also is piling up on the Gulf Coast, the four weeks of January adding 1,845,000 barrels or 65,893 barrels daily in this sector.

Oklahoma Production Drop

Oklahoma was adding to its crude stocks at the rate of 4715 barrels daily during the four weeks ended January 3 when its production was 415,500 barrels per day although its quota was 460,000 barrels. This failure to produce its allotment probably prompted OPC to recommend a production rate for January that was lowered 44,300 barrels to 415,700 barrels, which should have permitted the state to maintain its stability of the preceding four weeks. However, production dropped slightly to 406,650 barrels in January, and the state had enlarged market demand as tanker movements crippled shipments from the Gulf Coast. Consequently, crude stocks in January were drawn upon for 1,390,000 barrels, or a daily average of 49,643 barrels. Nevertheless, Oklahoma's February production quota was trimmed an additional 20,400 barrels on February 1, necessitating application of proration to 30 additional fields, and indicating a material advance in with-

[*Continued on page 34*]

Comparison of OPC Production Recommendations, Actual Production and Stock Trends in Principal Producing States

STATE	JANUARY DAILY PRODUCTION				DAILY CRUDE STOCK TREND		OPC FEBRUARY PRODUCTION QUOTA				
	OPC Recommendation		Actual Output Four Weeks Ended Jan. 31		During Four Weeks Ended			Quota's Change From			
	Total Quota	Change From Previous Mo.	Amount	Change†	January 3	January 31	Total Quota	January Quota	Actual Jan. Production	Percent Nation's Quota	Percent of Nation's Reserves
Texas	1,573,500	+93,800	1,552,850	+12,150	+18,125	+146,893	1,596,000	+22,500	+43,150	38.9	57.0
California	646,200	+10,400	628,800	+ 1,200	+26,392	+ 69,142	632,000	—14,200	+ 3,200	15.4	16.5
Oklahoma	415,700	—44,300	406,650	— 8,850	+ 4,715	— 49,643	395,300	—20,400	—11,350	9.6	4.9
Illinois	386,400	—40,100	364,350	—24,250	— 6,893*	— 10,036*	371,800	—14,600	+ 7,450	9.1	1.7
Louisiana	329,300	—10,700	363,950	+ 5,300	+ 4,071	+ 22,071	335,000	+ 6,700	—28,950	8.2	6.7
Kansas	259,900	— 800	246,700	— 4,900	— 1,642	+ 20,536	251,700	— 8,200	+ 5,000	6.1	3.5
New Mexico	121,200	+ 5,100	118,950	+ 450	+ 5,714	+ 3,964	119,300	— 1,900	+ 350	2.9	3.5
Arkansas	73,800	— 2,800	73,700	+ 200	+ 3,678	+ 12,571	74,500	+ 700	+ 800	1.8	1.8
Total Nation	4,138,400	— 600	4,114,350	—21,300	+62,750	+225,000	4,101,800	—36,600	—12,550	....	....

Stock figures from Bureau of Mines. Actual production figures from American Petroleum Institute.
* Includes Indiana storage changes also. † Change in daily average production from preceding four week period ended January 3.

Arkansas Discovery

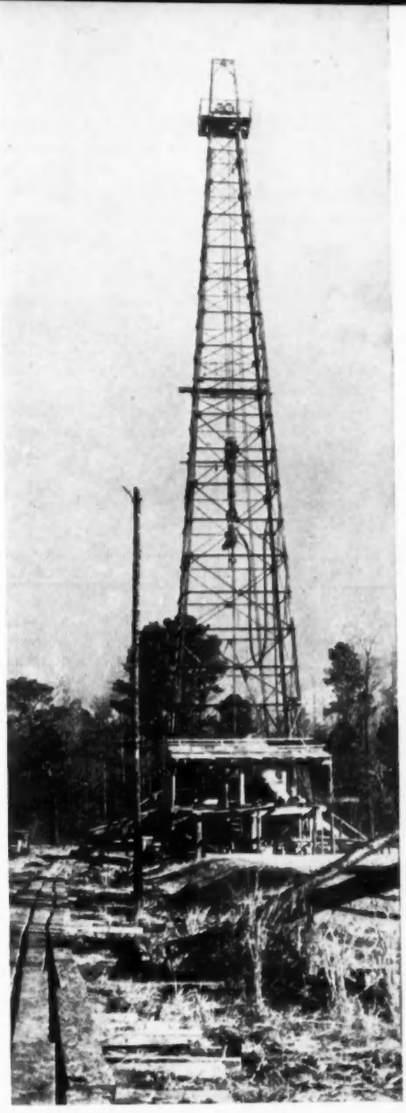
Opens Vast Region for Exploration

By GORDON B. NICHOLSON
Staff Writer

OIL development in Arkansas leaped into national prominence on the first day of the new year with completion of a wildcat in Lafayette County that had all the earmarks of being a major discovery of both regional and local importance. What has followed is reminiscent of old-time oil booms, with lease and royalties soaring to high peaks and a burst of activity which establishes the area as the present hot spot of the petroleum world. Arkansas buzzes with excitement as completion of additional wells is anticipated, and optimistic reports are circulated about the size and importance of the new field, now called Midway, and the possibility of similar fields throughout a vast zone which follows roughly the line of the Balcones fault for several hundred miles westward into Texas. Roads are crowded with trucks hauling drilling equipment and rigs, and offices of the Arkansas Oil and Gas Commission are besieged with petitions for new drilling locations.

Outstanding significance of the discovery is attributed to its location in an area previously condemned, and separated from the remainder of deep production in the state by a fault generally believed to mark the limits of productivity for the Smackover lime, the principal deep producing horizon of other Arkansas fields. Thus, disproving this theory catapults widespread enthusiasm among oil companies, and opens possibility of finding a sizeable new productive trend extending along the previously discredited side of the fault. Never slow to act, oil men are leaping into territories heretofore disregarded, with leasing and royalty play extending throughout southwest Arkansas and far into Texas.

An important feature of the oil and gas produced from the new well is that it contains none of the



A typical steam rig drilling at Midway. Activity has spread in all directions since Barnsdall Oil Company's discovery on January 1, 1942. The lower picture depicts terrain of the vicinity and the problem of transportation to drill sites.

Smackover Lime Producing Fields in Arkansas on January 1, 1942

FIELD	Prod. Depth, Feet	Date Discovered
Snow Hill	4938–44	May, 1936
Schuler	7636–55	April, 1937
Buckner	7196–7258	November, 1937
Village	7388–7430	May, 1938
Magnolia	7633–7649	February, 1938
Atlanta	8201–35	December, 1938
Dorcheat	8852–8890	August, 1939
Big Creek	7985–8000	December, 1939
McKamie	9175–9190	June, 1940
Macedonia	8840–8910	July, 1941
Patton	9320–30	September, 1941
Mount Holly	7160–81	December, 1941
Midway	6340–70	January, 1942

sulphur which is prevalent in all other Smackover production, and which causes operators in the sour gas and oil fields considerable expense in installation of special equipment. If in the future, additional non-sulphurous oil reserves are discovered west of the fault, value of the crude will be enhanced and considerable investment for handling sour oil and gas eliminated, providing an added incentive for exploration.

General Geology

Geologists long have recognized presence of a graben fault which extends along a generally northeasterly course in the vicinity of the Midway pool and which goes as far north as Nevada and Ouachita counties before assuming a southeasterly course toward the north edge of the old Smackover field, forming an arc over Southwest Arkansas. Opinions regarding the southwest extremity of the fault differ, with some geologists of the belief that it is related to the general zone of the basement fault of Texas, Louisiana, and Arkansas in the Rodessa area, and takes a westerly course into Hunt County, Texas, then swings southwest along the line of the Mexia or Balcones fault into Limestone County, representing an overall length of several hundred miles. Line of the graben fault, according to geological opinion, is found about six to eight miles southeast of the Midway field.

The original Smackover-lime production, discovered in 1936 by Phillips Petroleum Company, came from the Snow Hill area of the old Smackover field. Subsequent discoveries showed prolific production from numerous oil fields in this formation, but in the several tests drilled near the fault, permeability was so low that commercial production was impossible, despite good porosity and high saturation. A general tightening of the formation near the fault led to the belief that producing zones, as they approached the fault, had been worn away by erosion and hence were barren, although it is now known that in many instances it is necessary to penetrate 70 to 100 feet into the lime before it loosens. When, in an early attempt to establish Smackover production on the northwest side of the graben fault, E. H. Moore of Tulsa drilled 40 feet into the top of the lime from 7270 to 7310 feet and found the formation remained too tight to produce after treating with 10,000 gallons of acid, he abandoned the test and with it were also abolished hopes of geologists for finding production on that side of the fault. This test was 12 miles west of the Midway discovery.

Structure of the Midway field, detected by reflection seismograph, is believed to be an anticlinal dome similar to many other Arkansas fields, and it is thought that the field has no direct connection or relationship with the nearby graben fault. Production comes from the upper section of the Smackover, often called the Reynolds oolitic lime, which constitutes the main producing zone of the principal fields in the state.

Analysis of cores and electric log of the discovery well shows three formation types in the Smackover formation. The upper section, typical Reynolds oolitic lime, is highly porous, comprised of spherical particles of regular shape, resembling minute buckshot. Under the Reynolds is found a dense cellular lime which is made of massy, irregular particles, with non-communicating pores. This zone is wholly impermeable. Lower section in the Smackover consists of a granular structure containing particles of odd, assorted shapes, and has considerable porosity.

Geographical Location

The new field is in Lafayette County, Southwestern Arkansas, 6½ airline miles north of the town of Lewisville, and 15 miles south of Hope. Texarkana, the largest town near Midway, is 25 airline miles west. Located in rolling country with the soil chiefly red clay, the discovery well is in a dense growth of pine and pin oak. Drilled in low bottom lands, a combination of a siege of inclement weather, along with heavy truck traffic, soon made roads impassable, so Barnsdall Oil Company, at an estimated cost of $25,000, recently constructed a board road almost three miles long over the most difficult portion near the well. Already additional board roads extend to locations which mushroomed in all directions from site of the discovery. To ease transportation difficulties in the future, Lafayette County is working on a new road which will run in a direct line from Lewisville to the field.

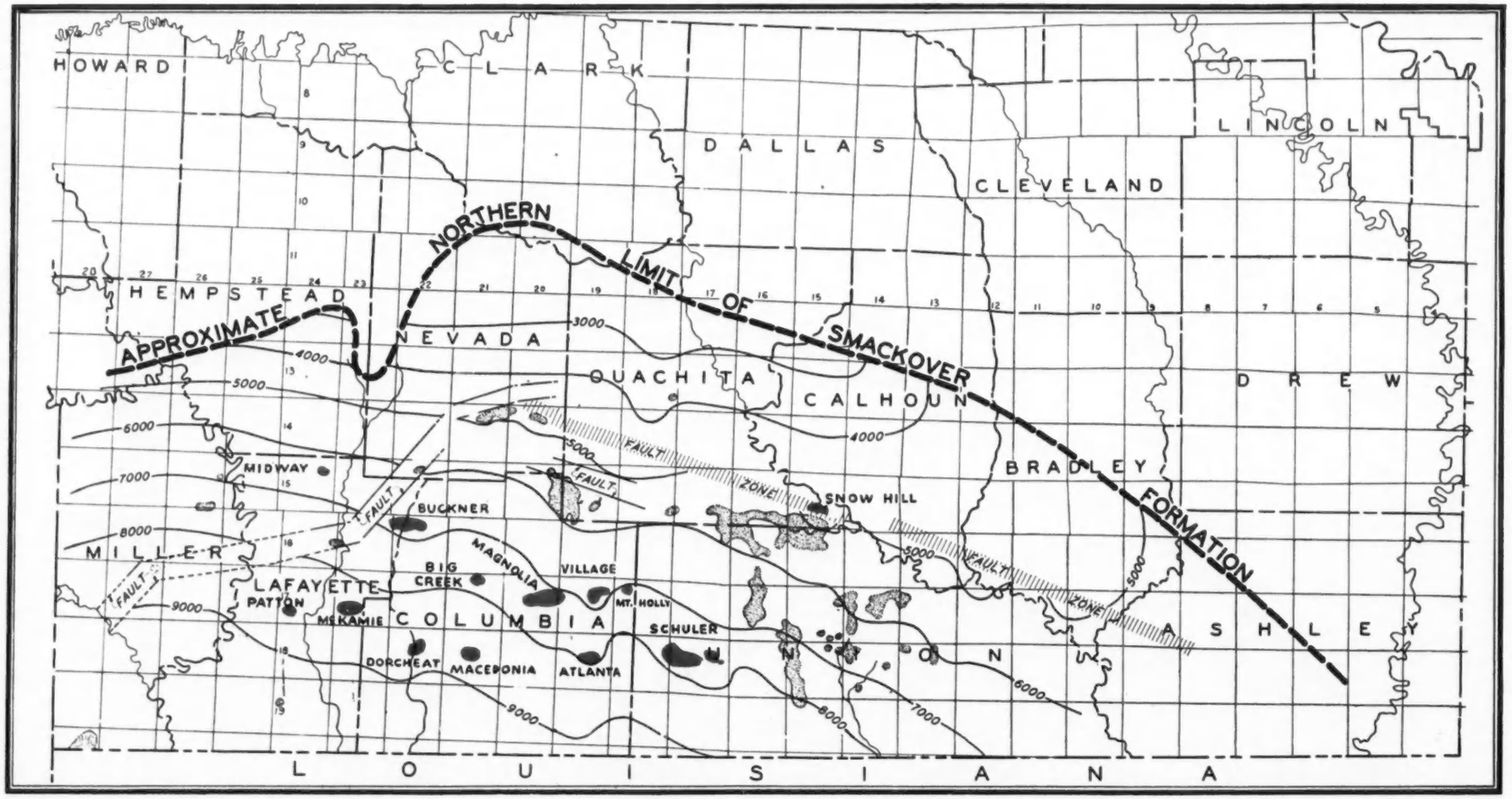
The Discovery Well

Barnsdall Oil Company's Bond 1 was drilled by J. I. Roberts Drilling Company of Shreveport, using a steam rig with three boilers and burning fuel oil which was brought in by a 2-inch line from a railroad 1½ miles distant. The well was spudded November 16, 1941, and completed on January 1, 1942. Actual drilling time was about 30 days, although frequent coring slowed operations considerably. With the exception of the conductor hole, which was drilled with a fishtail bit, only rock bits were used, including 1 15-inch and 19 9⅞-inch bits.

No high pressures of consequence were encountered, with the result that drilling mud requirements were kept at a minimum. The weight mud at no time exceeded 10 pounds, and the entire cost of chemical muds amounted to $1500. The following casing strings were used:

140 feet of 16-inch; 957 feet of 10¾-inch, and 6530 feet of 7-inch.

Many future tests probably will adopt 8¾-inch holes, and it is estimated that they will be completed in about three weeks. Operations are being expedited by construction of two gas lines to the field to



STRUCTURAL MAP OF SOUTHERN ARKANSAS ON TOP OF SMACKOVER FORMATION

Contour intervals 1000 feet. Figures give depth below sea level. Fields shown in red produce from Smackover lime. Taken from Arkansas Geological Survey Information Circular 12.

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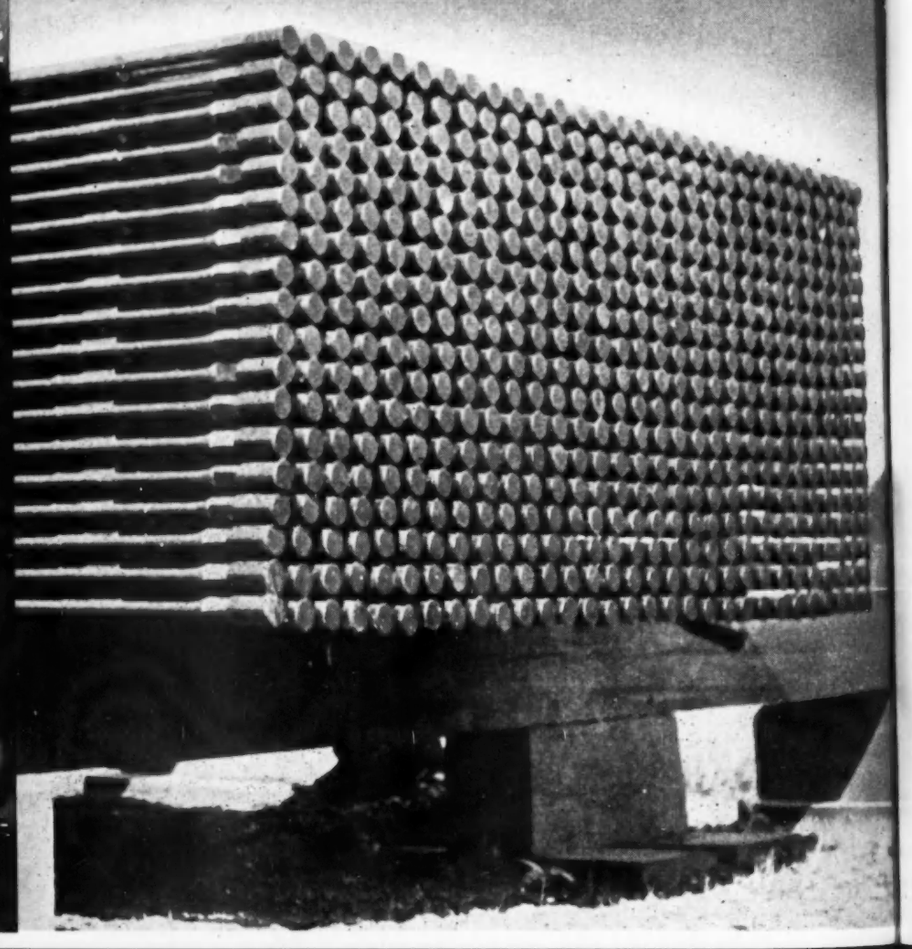

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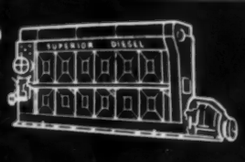

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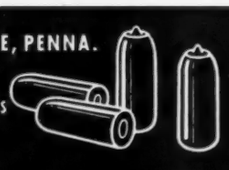

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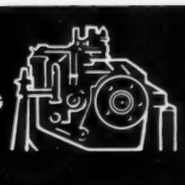

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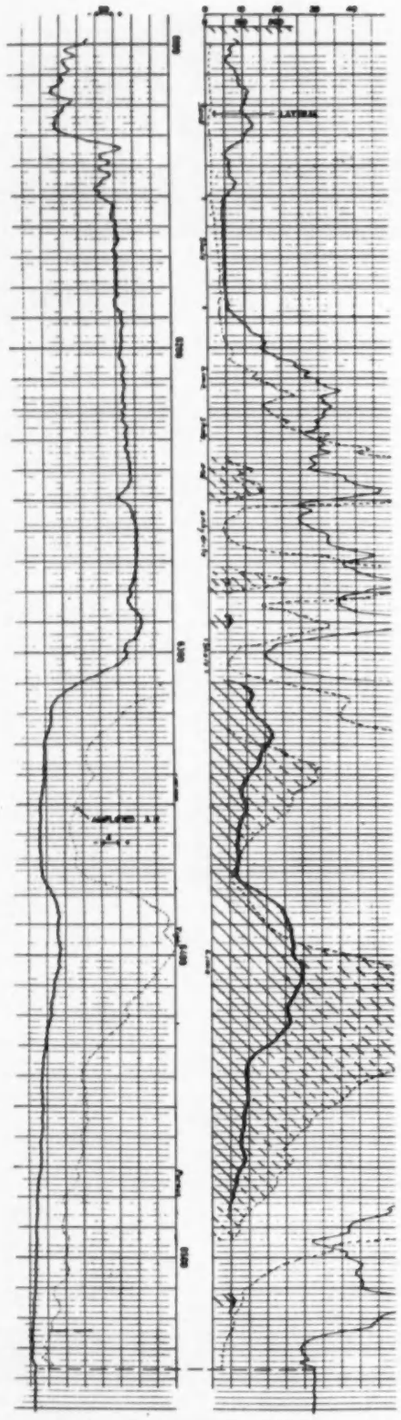
furnish fuel, one a branch from the line of Arkansas Louisiana Gas Company which is 6½ miles west, and the other being built by Nevada Transit Company.

Depths of the principal markers are given in the following table:

	Feet
Top Midway	504
Arkadelphia	913
Nacatoch	958
Saratoga	1436
Base Anona	1770
Base Buckrange	1895
Top Tokio	2104
Bengen	2273
Paluxy	2395
Upper Glen Rose	2795
Massive	3141-3275
James	3710-69
Top Hosston (Travis Peak)	4025
Cotton Valley	4807
Buckner	6151
Smackover	6296
Reynolds	6304-72
Water contact	6520



Electric log of Barnsdall Oil Company's Bond 1 shows Reynolds oolitic lime saturation from 6304 to 6372 feet. Under this lies a dense banded lime section, with a lower zone of porous granular lime from 6419 feet to the total depth of 6536 feet. Top of the water was located at 6520 feet, and the well was completed with 100 perforations from 6340 to 6370 feet. Elevation of well is 272 feet.

Top of the Smackover was found at 6296 feet, with the Reynolds oolitic lime encountered at 6304 feet and extending to 6372 feet where a dense banded lime was drilled, having low permeability and low porosity. Base of the dense zone was located at 6419 feet, below which the soft cavernous member was cored, having a high porosity and somewhat less permeability than the oolitic member. This section extended to the indicated water level at 6520 feet. The well was drilled into the water to a total depth of 6536 feet, where production pipe was set almost to bottom. Total thickness of the saturated Smackover formation is 216 feet.

Casing was perforated in the oolitic section from 6340 to 6370 feet with 100 shots, and the well was brought in flowing an initial production of 80 barrels per hour through a 20/64-inch choke, with gas/oil ratio 257 to 1.

Porosity of the lime from this well is 21 percent, and its permeability is 500 to 700 millidarcys, with high saturation. Segregation of the producing formation into three distinct zones probably offers opportunity for completion in more than one lime section by dual completions, or, if feasible, by twinning wells. The oil has a gravity of 35.5, and its color is dark green; viscosity at 50° F. is 65, and at 100° F. is reduced to 42.5, with pour point below zero.

On a breakdown analysis, the oil shows the following yield:

Product	Percent
Gasoline	15.0
Naphtha	14.5
Kerosene	9.3
Gas-oil	26.2
Wax	18.5
Residue	14.8
Loss	1.7

Vapor Temperature	Gravity
250° F.	72.5
375° F.	52.4
475° F.	43.4
450° F. @ 5 Min.	31.8
580° F. @ 5 Min.	22.9
	7.9

Oil from Bond 1 is clean pipe line crude, without salt water, with treatment unnecessary before delivery to the pipe lines. The well flows under its own pressure, normal operating pressures recorded as follows: Tubing, 850 pounds; casing, 750 pounds, observed while flowing through a 10/64-inch choke and making its daily allowable of 400 barrels. The crude is undersaturated, with little gas present in the production as the field is almost entirely water driven. Bottom-hole readings taken at 6300 feet show 2915 pounds pressure and temperature 173° F. Size of the tubing is 2½ inches.

A separator and two 1000-barrel wooden tanks handle the oil, the wooden tanks for storage used as a preliminary precaution against obtaining sour crude. For oil from future wells drilled in the Midway field, steel tanks probably will be installed as it is now known that sulphur is not present. Barnsdall erected two additional 1000-barrel steel tanks at the nearby railroad, and at present is shipping in tank cars to the El Dorado refinery of Lion Oil Refining Company, purchasers of the oil. Transfer from field to railroad is through the 2-inch line which was formerly used as a fuel oil line for the rig, procured by Barnsdall from the drilling contractors after completion of the well. It is rumored that at least two major companies are planning to construct lines into the field in the near future, while an added outlet for production will be provided by completion of a gasoline plant reportedly planned.

Size of Structure and Possible Reserves

Oil men in the new producing area are highly optimistic in their opinions of the field. Based on tendencies observed in leasing, size of the structure is about 5000 acres. Examination of the cores and an analysis of conditions found in the discovery well lead engineers to estimate the reserves of the field as 600 barrels per acre-foot, or 36,000 barrels per acre. This estimate is based only on well completions in the upper portion, the Reynolds oolitic lime, with 60 feet of thick-

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ness, and does not include reserves in the lower saturated section. The discovery is already regarded as the most important in Arkansas since the discovery of the Magnolia field in 1938, and many qualified observers class Midway as a greater reserve than Magnolia, a field which covers 4494 acres with an original reserve of 180,000,000 barrels. It is understood that Barnsdall Oil Company plans extensive and immediate development, and expect to have the 3000 acres which it acquired on the structure drilled with 40-acre-spaced wells by January 1, 1943. Drilling of 75 wells in 11 months necessarily demands an intensive development program and the influx of many rigs into the field.

Field Rules

After Barnsdall's Bond 1 was turned into tanks as a producer and the discovery well of a new field, further operations were delayed while rules for field development were devised by the Arkansas Oil and Gas Commission, in compliance with its continual efforts to conserve natural resources of the state. At a public hearing in Lewisville January 22, 1942, evidence was presented which resulted in the issuance of field rules on January 24. The rules decreed that spacing in the new field, in accordance with federal governmental restrictions and with established Arkansas spacing regulations for oil fields, will limit one well to 40 acres, which will efficiently, effectively, and economically drain this area. It was further decided that wells must be spaced within a zone not exceeding 100 feet from the center of the 40-acre drilling unit. Dual completions in the field are to be allowed in instances where evidence shows their feasibility and necessity.

Daily allowable of the discovery well was fixed at 400 barrels, with a descending scale regulating allowables of subsequent wells in the field, each well finished allowed to produce in amounts 50 barrels less than its immediate predecessor until a base allowable of 200 barrels per well for remaining wells in the field is reached. This allowable schedule explains, in part, the haste in completing additional wells.

Maximum gas/oil ratio permitted for wells in the field is 1000 cubic feet of gas to each barrel of oil, with proportionate penalties exacted from wells which must produce with excessive ratios. Special provisions stipulate allowables of gas wells, based mainly on volumetric withdrawals from the reservoir.

Rules state that a string of casing must be set to a minimum depth of 550 feet to protect all fresh water sands, and that a production pipe must extend below the point of gas-oil contact. Each string of casing is subjected to the usual tests prescribed by the Arkansas Oil and Gas Commission, which requires testing with clear water, allowing a maximum pressure drop of 50 pounds in 30 minutes after application of 1000 pounds per square inch on the protection casing, and 1500 pounds per square inch on the production string. A minimum of 750 sacks of cement is required to cement the long string, and it must be allowed to set 72 hours before drilling the plug.

For safety, all flowing wells will be equipped with a subsurface safety valve or choke having a capacity not greater than twice the daily allowable assigned to the well. Tubing size is set at 2½ inches as a maximum, and all connections subject to well pressure must be of at least 4000 pounds test.

A Boom Gets Started

Completion of Barnsdall's Bond 1 marked the "go ahead" signal for a rush by oil operators from many parts of the country to obtain acreage in the area. Nor were efforts confined to the Midway field. As information on the new discovery was consolidated, leasing became more widespread, finally enveloping counties in Arkansas stretching from Calhoun and Dallas in the East to Little River and Miller counties in the West. Nor did the state line designate the limits of the play, as leasing extended far into Texas, running on a line parallel to the Balcones fault zone into Bowies, Titus, Hopkins, and Hunt counties, turning there in a southerly direction to include Navarro County, scene of Texas' first oil discovery at Corsicana, and still further into Limestone County. One of the largest single blocks ever assembled individually in Central Texas was taken recently by a large company in the Coolidge area of Limestone County, consisting of 80,000 acres and scheduled for an early Smackover test. Thus, the Midway discovery forms basis for large-scale speculation and for a Smackover wildcat test some 220 airline miles distant. Prices along the trend skyrocketed as conjecture revealed the new possibilities offered, and royalty considered almost worthless a short time before leaped to a reported base price of $2750 per acre under the discovery well and $2250 under offset property, with base prices as high as $1200 some distance from the discovery.

Companies which had previously disregarded possibility of finding oil in the region immediately jumped into activity. Within two weeks after Bond 1 was completed, 25 geophysical crews were shooting the area throughout the faulted regions of Arkansas alone, with others working the Texas side. In the vicinity of Midway, almost all the geophysical exploration is done by reflection seismograph, although one or two magnetometers are being used.

As soon as the Arkansas Oil and Gas Commission completed rules for the field, 16 drilling permits were granted to impatient companies. Within a few days, 8 or 10 rigs were drilling in an effort to be the next to tap the large reserve, with prospects bright that within two weeks after the locations were announced, 16 rigs would be active. Locations have been staked in all directions from the discovery, the tendency for development assuming a northwest-southeast direction, with the discovery well located in the approximate center of the new development. Some observers believe that the field will later level to an east-west axis, and so conform with the tendency of other Smackover pools.

Spotted over the 5000 acres estimated to compromise the field, the principal leaseholder is Barnsdall, with about 3000 acres of the area expected to produce. The balance of the leases are distributed between several operators, which include mainly the following: Magnolia Petroleum Company, Arkansas Fuel Company, Southwood Oil Company, J. I. Roberts Drilling Company, Pat Rutherford, Frank Frankel and C. H. Murphy of El Dorado.

Steam rigs dominate the scene at Midway, with the following Companies operating one or more rigs at present or moving tools into the field in preparation for drilling: Falcon-Seaboard Drilling Company, Sultana, Grady Vaughn, J. I. Roberts, Big West Drilling Company, Parker Drilling Company, Lee Drilling Company, Pat Rutherford, and a Barnsdall Company rig. Additional contractors

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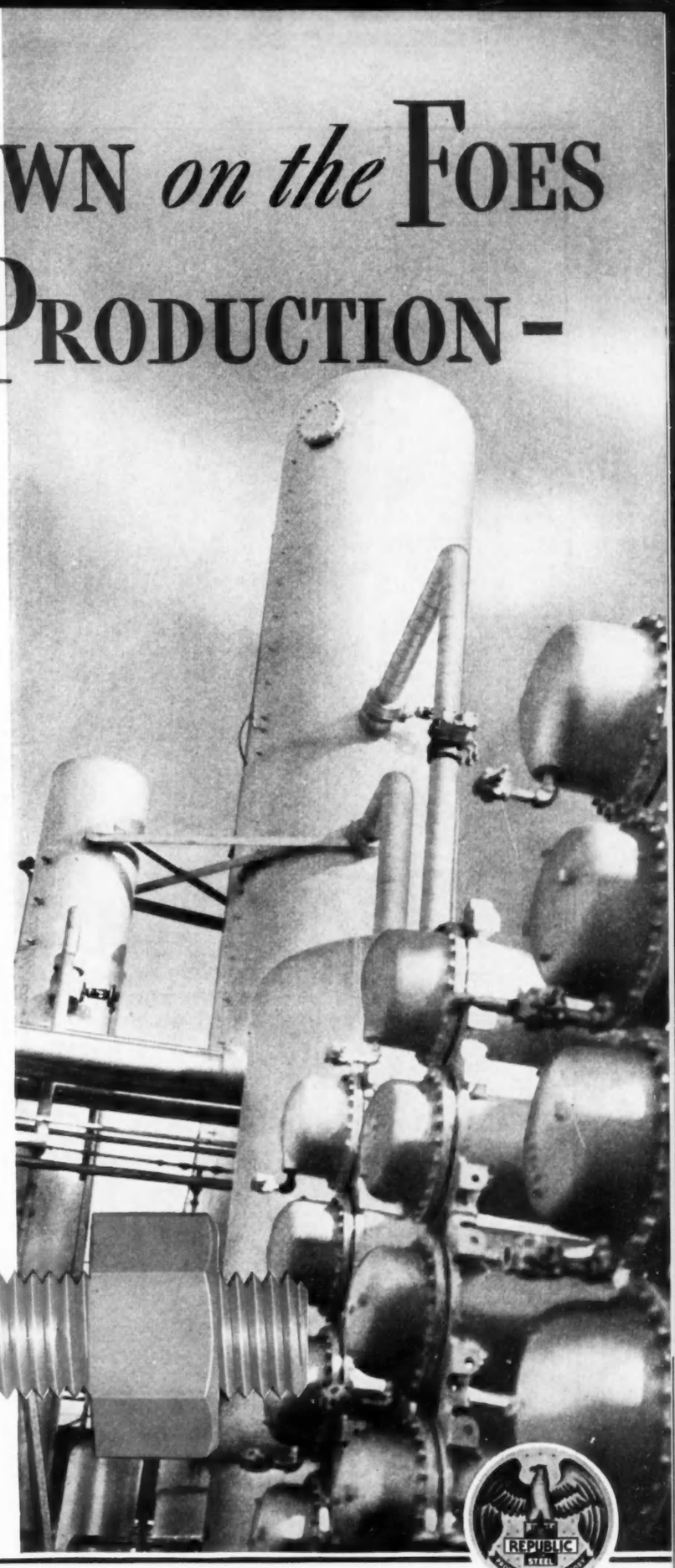

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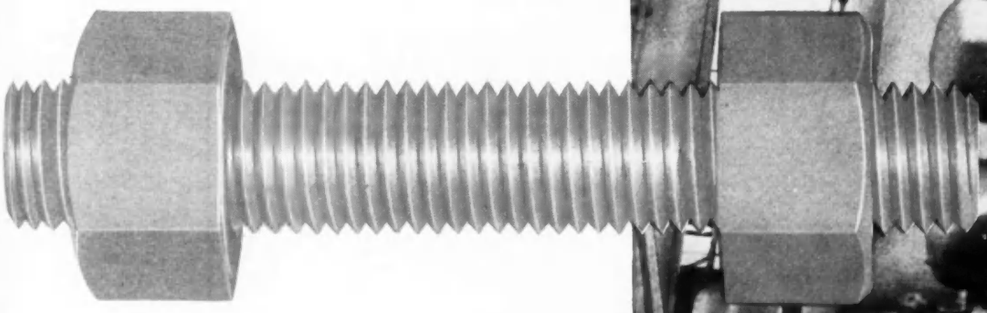

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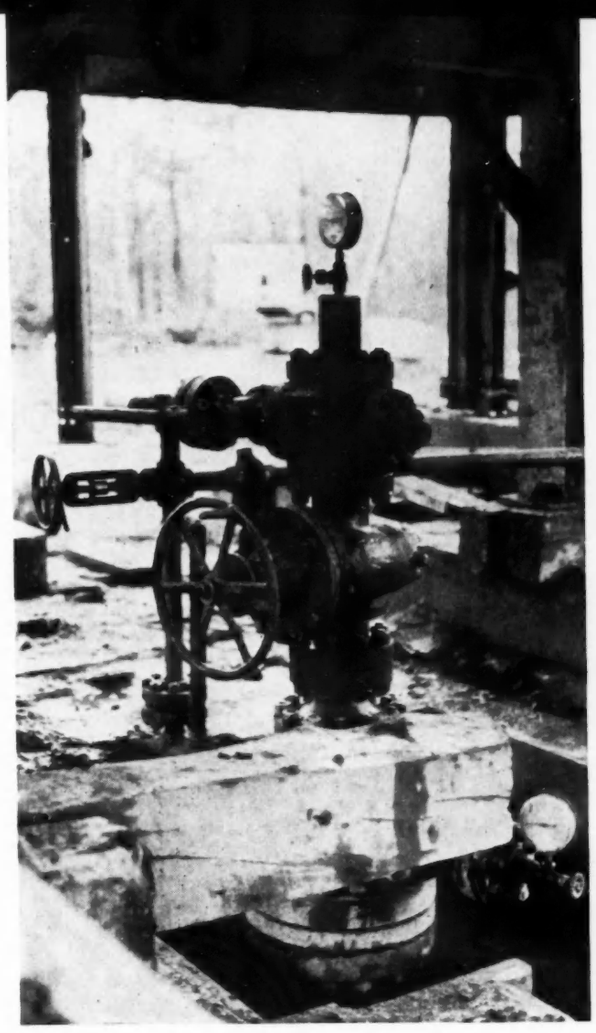
SOUTHWEST ARKANSAS-NORTHWEST LOUISIANA-NORTHEAST TEXAS OIL FIELD MAP

Discovery of a good Smackover Lime producing field in an area heretofore generally condemned, has touched off an unusually large leasing campaign in southwestern Arkansas that is extending westward into Texas along the Balcones Fault Zone for several hundred miles. Base map courtesy of H. D. Easton and Globe Map Company of Shreveport, Louisiana.

also are preparing to move into the area.

Plans were made hastily for erection of supply houses, and within a few days after Bond 1 was turned into tanks, construction on the first store in the field was started, located four miles from the discovery well in a site strategic for field convenience and also easily accessible for receiving equipment and supplies both by truck and rail.

The field is located almost in a direct line between Hope and Lewisville, being closer to the latter. Both towns are easily reached from outlying districts by road, as Hope is located on U. S. Highway 67, often called "The Broadway of America," and Lewisville on U. S. Highway 82, each an east-west artery with access to other important centers. A north-south road extends from Shreveport, Louisiana, to Hope, by way of Lewisville, and passes near the Midway field. Lafayette County has already started construction on a new county road which will go directly to the new field and considerably reduce the distance from Lewisville.



Barnsdall Oil Company's Bond 1 is the discovery well for the Midway field, flowing on test 80 barrels of pipe-line oil hourly through a 20/64-inch choke. Finding production here opens a vast new area for development.

Two railroads are located conveniently to aid field development and movement of crude. Nearest rail connection is the line of the Louisiana and Arkansas railroad, which, as previously mentioned, passes 1½ miles east of the discovery well. In addition, the St. Louis Southwestern Railroad (Cotton Belt), furnishes east-west service, with a branch line running from Lewisville to Shreveport.

Location of Lewisville apparently makes it the logical town for centralizing development of the new field. It is the seat of Lafayette County, with a population of 1500 inhabitants. Power for its local enterprises is provided by lines of Arkansas Power & Light Company, and gas is furnished by Arkansas Natural Gas Company. The gas line of Nevada Transit Company passes nearby. Lewisville has had oil activity in the past, with development of the shallow Lewisville field a few miles southeast of the township, as well as the large McKamie gas-distillate field and the recently opened Patton pool.

A new courthouse was already under construction when Midway was discovered, and when completed, will be the focal point for much activity with this latest development of oil in the county. The old courthouse, since oil was discovered, has enjoyed the bustle, excitement, and prosperity of the oil boom.

The nearest large center in Texarkana, the twin-state city 30 miles west of Lewisville on the Texas-Arkansas state line. This city has enjoyed prosperity in the past, and prior to the appearance of oil men, its several hotels were already taxed to the fullest because of construction of several important defense projects in the vicinity. Population of Texarkana, normally about 31,000 people, has already swelled to an estimated 50,000 due mainly to these projects, and, despite adequate housing facilities for its normal population, at present the hotels are crowded with latest inhabitants. The government is erecting a number of housing projects to accommodate defense workers, and it is expected that their completion will relieve the burden now placed on the city's several hotels.

Probably Texarkana's chief interest to oil and supply companies is its value as a railroad center, for the city is served by four trunk line railways having eight outlets: Missouri Pacific, St. Louis Southwestern, Kansas City Southern, and Texas & Pacific, operating 30 passenger trains and 42 freight trains in and out of the city daily. In addition, the city is served by four federal highways and one state highway, giving access to the town from virtually all directions. Already interested oil companies are opening offices in this center.

It is still too early in development for sound conjecture on possibilities offered by discovery of the Midway field. All speculation is based on hurried calculations on the performance of a single well, and oil men recognize the possibility that the wells being drilled now may cause a change of opinion regarding its importance to the industry. The field may be a "freak" and hence a disappointment to its developers; on the other hand, it may exceed hopes of even its most enthusiastic boosters. The next several weeks will provide the answer to many such questions.

As the field continues to develop, it may well be the outstanding oil discovery of the year, and will put the spotlight on a huge new area for large-scale exploitation. Thus, a stimulant is given to all oil development, with quick response from the ever-alert petroleum industry. Regardless of future developments, one thing is certain. The boom now encompassing the Balcones fault zone is at fever heat, and wealth is being made overnight by fortunate landowners in the vicinity. Oil prosperity has again appeared in those sections of Arkansas and Texas, and the hungry public is readily devouring it and preparing for more to come.

California Well Spacing . . .

War and Geology

By WILLIAM W. PORTER II
Consulting Geologist, Los Angeles, California

IF Southern Californians should design an overcoat suitable for themselves, and then, as a measure to conserve wool, urge this lightweight overcoat on the nation as a whole, it would be no more ludicrous than urging the philosophy of Eastern oil-field practice upon California. California geology is as different from Eastern geology as California climate is different from Eastern climate. And a Mid-Continent well-spacing plan is as unsatisfactory when superimposed upon California geology as a California overcoat is unsatisfactory for a Mid-Continent winter.

The oil fields of California are in a mobile strip of the earth's crust in the "Pacific circle of fire" which rings the Pacific from the volcanos of Chile and Peru via California and the Aleutian Islands to the volcanos of the Dutch East Indies. This mobile strip of the earth has been subjected to far more structural activity than the areas of the eastern oil fields. Some pertinent results of this are: close folding; large scale faulting; low angle faulting; faults close together and often buried; thick and rapid sedimentation; and important changes in sedimentation and reservoir lithology within distances shorter than the dimensions of many individual oil fields.

Some of the results of this type of geology have been recognized in the literature on well spacing, but all too frequently they have been brusquely dismissed as minor. Sunset - Midway, whose total production is slightly under a billion barrels of oil, is not minor. Sunset-Midway is one of the many California oil fields where such conditions prevail. Coast geological features may be minor in Eastern geological provinces; but likewise limestone reservoirs are of no importance in California.

The much criticised Long Beach field is actually wider spaced per acre-foot of oil sand than some of the model development examples of the east. The principal area of some 1300 acres with some 1400 wells has in excess of 1000 feet of oil sand. This results in roughly 1 well per 1000 acre-feet of sand. It is therefore comparable to development elsewhere with 10-acre spacing and 100 feet of sand, or 100-acre spacing with 10 feet of sand. Recovery has been almost half a million barrels per acre.

Furthermore neither the economic import nor the sociological and military aspects can be ignored. The great per-acre yield caused lease values to reach and sometimes exceed $5000 per acre. A 40-acre spacing regulation in 1923 would have had the practical and anti-social effect of handing this reserve of well over half a billion barrels of oil over to a handfull of operators because only those few could have been able to acquire 40 acres at $5000 per acre and then drill a well. Such a ruling would have required at least $250,000 per drill site for participation in the Long Beach oil reserve, and would thus have removed from many citizens their right to engage in the oil business. However, under "close" spacing a number of independent operators got their start in the oil business. And a number of those companies, because of healthy subsequent growth elsewhere, developed from that start to today's position of being capable each of supplying the entire West Coast military needs for petroleum.

A further argument fallaciously urged in favor of wide spacing can be found, stated very similarly, in publications of learned associations, in publications of oil journals and in the official records of Congress (Cole-bill testimony, for example). All of these sources cite close spacing with uncontrolled flow and generally bad production methods as being inferior to wide spacing with controlled flow and generally good production methods. These weighty conclusions are drawn from comparisons of the results obtained from different spacing grids under unlike production methods. Such muddled reasoning has a more appropriate place in an Amos 'n Andy comedy than in technical literature. Has nobody heard that controlled flow and the best production methods can be and frequently are applied to close spacing, and that bungling production methods are not totally unknown where the spacing has been wide?

Presented before February meeting of California Natural Gasoline Association.

Spacing Related to Geology

It is not the purpose here to urge close spacing. The purpose is pointedly to avoid urging any particular spacing in general (and to hope that others will do likewise). Under a program of orderly and scientific development of oil reserves no particular plan can be applied to the different geological provinces of the United States, nor always to all of the fields in the same province, nor even to all parts of each single field in California, at least. Proper spacing is definitely related to geology as well as to physics and other matters, and the geology of fields or districts cannot be taken glibly for granted as it has been frequently. Effective conservation can be accomplished only if the laws of physics and the data on drainage, phase behavior of fluids, and other reservoir engineering data are applied in accordance with sound geological principles.

California has been the recipient of much criticism from both pri-

and NOW it's
WYTEFACE "A"!

Once again steel tapes have been improved—and by the same house that has led in measuring developments for the past three decades! This time it's WYTEFACE "A"—a new type of WYTEFACE Tape with *raised* black metal graduations on a crack-proof white surface; easy to read as a newspaper headline; with an uncanny resistance to abrasion that greatly prolongs its useful life. Constant wiping, abrasion with oil and sand, or scraping on the pipe pile have no terrors for this improved steel tape!

WYTEFACE "A" is the result of constant research. Less than thirty years ago all steel tapes were shiny —until K&E developed the well-known Keco finish to provide contrast for the numbers and graduations. In 1935 this same research produced the famous WYTEFACE line, with easy-to-read graduations marked directly on a crack-proof white surface. It is but one logical step to WYTEFACE "A" with its increased resistance to abrasion, designed particularly for oil field service!

There are K&E WYTEFACE "A" Steel Tapes in all sizes and types—in cases or on reels—for every job in the oil industry. You will find them stocked by every leading oil well supply company. Ask your dealer—or write for a catalog.

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vate and official sources regarding its conservation methods, well spacing, and otherwise as to its conduct. It is unfortunate that critics seem to have accepted a superficial conclusion as to the reasons for the things they criticised. In spite of California's claims to many superlatives—the highest mountain, the biggest ocean, the thickest Cretaceous rock section, the biggest telescope mirror, and so on to the finest climate—it does not really follow that California has the biggest percentage of cussedness in the oil business. California's rejection of notions and procedures reported to have worked well elsewhere, and California's conduct of oil operations in a manner which apparently seems unorthodox to many easterners has a more fundamental explanation than can be found in the unique character of the geology of the California coast ranges and basins where the oil fields occur.

These geological conditions differ so radically from those of Texas, the Mid-Continent, and other oil areas of the United States that they dictate not merely minor adjustments of procedure, but a difference in the general philosophy of oil development. If this fact is recognized, California production, conservation, and development methods will be found to compare favorably with those of any other area, and to have many points of superiority. And recognition of this fact should also provide regulations consistent with a war in the Pacific. It is neither good operating practice nor sound conservation to superimpose spacing and development regulations from the gentle geological structures of the Mid-Continent and Texas upon the tumultuous Tertiary geology of the Pacific Coast.

California's position of being isolated from Eastern oil supplies throws on the Pacific Coast the problem of supplying oil for military, industrial, and civilian demands of a Pacific war. Consequently it is vital that regulatory orders be consistent with the peculiarities of California geology. The pressing need for immediate revision of regulations such as M-68 to a form consistent with the good operating practice dictated by the geology of the provinces where such regulations are applied is of vital national importance.

State Production Rates

[*Continued from page 20*]

drawal rates are due in February, when its market demand probably will be greater than in January due to intensification of tanker movement difficulties from Texas-Louisiana.

Illinois Demand Above Ability

Illinois, closest flush producing area to the famine-threatened East Coast, in combination with Indiana reduced its crude stocks an average of 6893 barrels daily during the four weeks ended January 3, but in the following four weeks drew 10,036 barrels per day out of storage. Although OPC production quota for Illinois in January was decreased 40,100 barrels daily, the state's trouble seems to be that of actually producing, for it produced only 364,350 barrels in contrast with a recommendation of 386,400 barrels. Consequently, despite prospects for greater market demand in the region during February, due to its proximity to the Eastern industrial and heavily populated territory the production allocation to Illinois was slashed another 14,600 barrels February 1. This still left the state with a quota exceeding its daily producing rate during the past four weeks, although in the first week of February production climbed to a level with the OPC recommendation of 371,000 barrels. In view of prospects for increased demand, Illinois withdrawal rates in February should be greater than in January, but nothing apparently can be done to change the situation unless additional sources are found.

Although Louisiana, which consistently continues to produce more than its recommended rate, had its January production allocation reduced 10,700 barrels by OPC, production rose 5300 barrels to 363,950 barrels during the four weeks ended January 31. This increased output coupled with smaller shipments resulted in the state's daily average crude stock increase rising to 22,071 barrels during the four weeks ended January 31, in contrast with but 4715 barrels added per day during the preceding four weeks. OPC on February 1 raised Louisiana's quota 5700 to 335,000 barrels, but the state fixed an allowable of 344,955 barrels and during the first week of February produced 365,350 barrels daily. A continuation of this rate of production, in view of prospects for smaller demand in February because of magnified tanker shipping problems, would boost Louisiana's crude stock increase rate materially during the month.

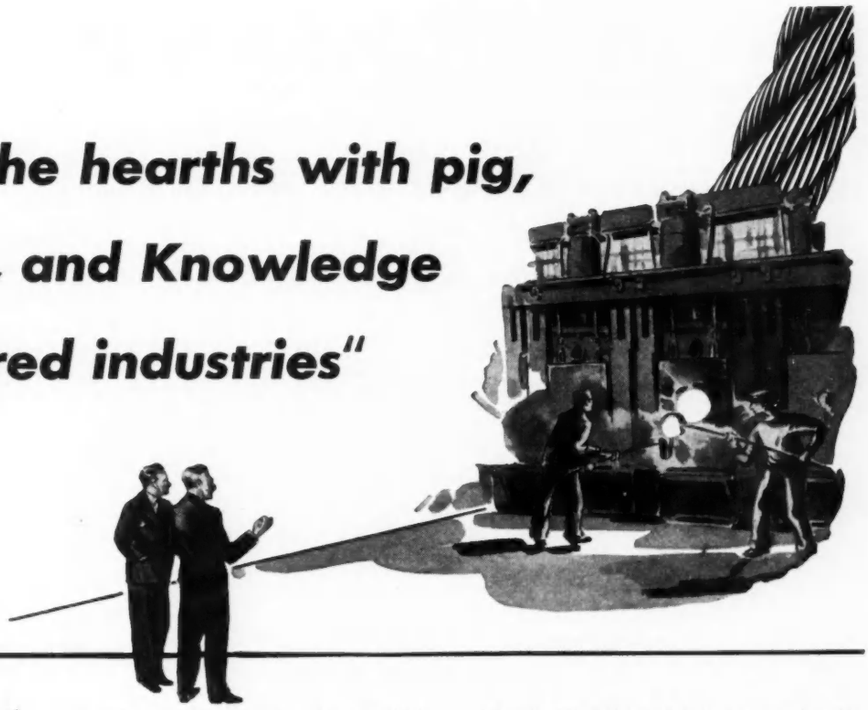
California Adding Storage

California was adding oil to storage at the rate of 26,392 barrels per day during the four weeks ended January 3, but was given an increase of 10,400 barrels in production by OPC. However, actual production in the state rose but 1000 barrels to 628,800 barrels in comparison with the OPC quota of 646,200 barrels. Nevertheless, additional transportation troubles, raised the rate of daily storage increase to 69,142 barrels during the four weeks ended January 31. OPC took cognizance of the state low production and storage additions, reducing recommended production rates by 13,900 barrels daily in February, which was but slightly above actual production levels of the past four weeks. However, production has shown a tendency to increase in recent weeks, and California additions to storage probably will be greater in February than in the preceding month.

Peculiarly, a small amount of oil was being drawn from storage in Kansas when production was averaging 251,600 barrels daily in the four weeks ended January 3, and with production curtailed to an average of 246,700 barrels in the following four weeks additions to stocks rose to a daily rate of 20,536 barrels. February production quota was reduced to 251,700 barrels, still above the January producing rate.

Arkansas added to storage at the rate of 12,571 barrels daily in January, yet its February quota was increased 800 barrels.

"You charge the hearths with pig, and scrap, and Knowledge of a hundred industries"

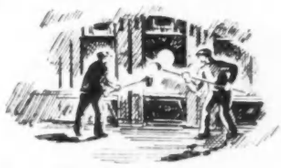


For this is Roebling "Blue Center" Steel

"It's fired for many hours before it's ready to pour, and during the better part of two shifts you put into it many things. Some are ingredients that anyone can use in open hearth steel. And some are not . . .

As the empty hearth begins to glow, you lay your silica bottom. You're making "Blue Center" steel, and it calls for purer raw materials. Good pig, selected scrap and plate.

Long daytime hours and nighttime hours of firing, and at their end, the one right moment when the steel is ready to pour. When is that moment? Shake hands with Andrew Fors, one of those whose eyes since 1906 have been an ingredient of Roebling ingots. Now he's passing his melter's skill on to his son at Roebling. Yes, skilled eyes and eyes alone can tell when the melt is ready. There is no other way . . .



There goes another strange ingredient in. That melter's taken out a sample, to put back something bigger...Knowledge, from the Roebling laboratory and field. Knowledge of a hundred industries, and steel that will exactly meet the needs of each. Every melt's a special melt — right for oil well drilling lines, or aircraft control cord, or elevator cable, or factory cranes . . . right for tugboat hawsers, or mine hoists.

That's the only way you can make the steel we use in "Blue Center" Wire Rope. You start right with the way the ingot's made . . . to meet its job right from the first. We call it "tailored steel", and it's worthy of the Roebling Trade Mark, from the time it leaves the open hearths . . ."

JR ROEBLING

Knowledge of men in the Roebling mills, of Roebling men in the field . . . Roebling process control and engineering and research . . . there's many a hidden ingredient in "Blue Center" Wire Rope. Reasons why it lives so long, and never fails to deliver its full measure of service.

JOHN A. ROEBLING'S SONS COMPANY
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THAT'S THE ONLY WAY TO MAKE

ROEBLING

"Blue Center"

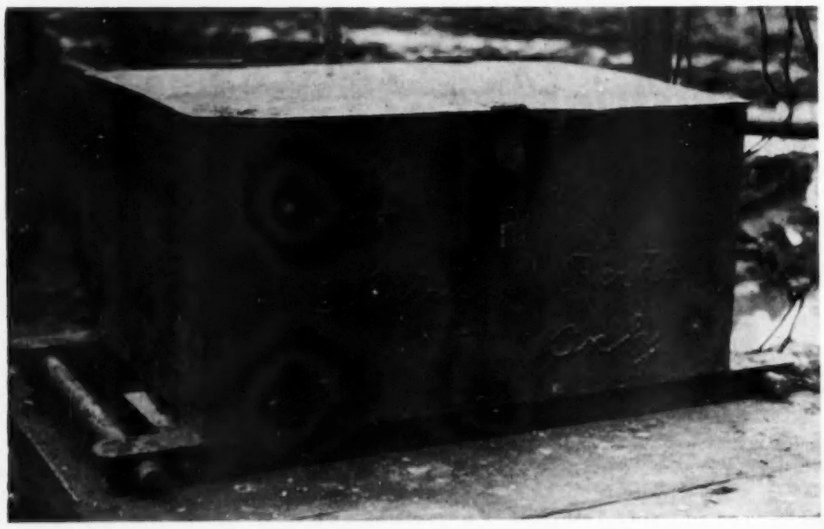
STEEL WIRE ROPE

PREFORMED OR NON-PREFORMED

PRACTICAL OPERATING HINTS FOR

1. PARTS SEGREGATION

Skid-mounted, All-welded Box Identifies and Separates Electrical Units From Other Parts



To prevent indiscriminate use of box for parts storage, a welded bead is used to mark the purpose of each unit across face and speed search for replacements.

WELDED lettering on the outside of tool boxes and other receptacles aids to keep tools and incidental equipment in the proper storage places, to facilitate locating when needed and to prevent their becoming scattered about the premises. A box for electrical equipment, power plant parts, and tools for their installation is used by one Texas Gulf Coast drilling contractor, and is marked plainly on the front with large lettering, "For Electrical Parts Only," applied by welding.

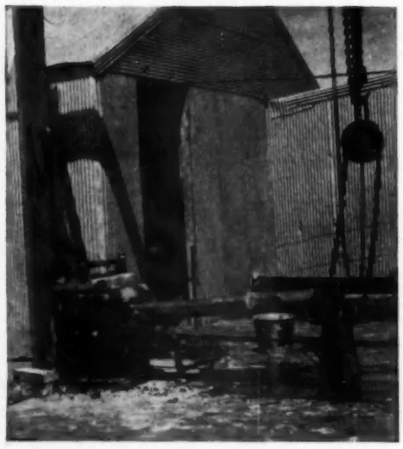
The box is three feet long, about two feet wide, and 18 inches deep, made of steel plates, welded at the corners, and placed on light skids, to be moved individually or with the larger feed-water pump skids upon which it is usually located. The box has a hinged top with a hasp and lock to safeguard tools.

As the lettering indicates, only electrical apparatus is kept in the box. Thus, when parts are needed, it is not necessary to search through several boxes to locate the equipment, and at the same time, accumulated tools and hardware of diverse nature always around a rig are not mixed with electrical supplies, permitting easy location of the pieces wanted.

2. BIT DRESSING

Oil-drum Shell Serves As Rig Forge Housing

TWO-THIRDS of an oil drum, with a section cut out on one side for drill clearance, serves as a shell in which a convenient forge for bit dressing may be made from loosely piled fire brick, the fuel being admitted below the shelf formed at the cut-away portion, and heating confined to the immediate vicinity of the bit by the brick.



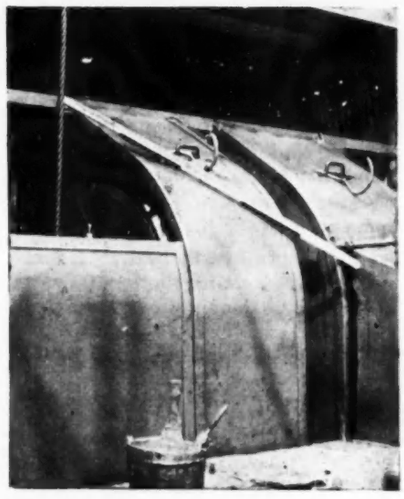
Firebrick hearth within drum conserves heat and provides mobile gas unit.

A wooden block, cut with a 60-degree Vee at the top, serves to hold the bit at the desired angle for heating, the use of wood instead of the usual metal rest tending to protect the threads from possible damage during handling or rotation while heating.

The fire-brick-lined heating furnace is light, easily handled during moves, and is readily adapted to various sizes of steel.

3. HAND TOOLS

Hooks on Drawworks For Measuring Stick



Use of upper curve of drawworks housing as rack clears floor and speeds work.

HOOKS welded to the front of the drawworks housing are used by Fain Drilling Company, in Oklahoma operations, for speeding work. The measuring stick, used to transfer measurements to the drill pipe when running core bits, is hung on one of the hooks, readily available to the driller, but out of the way and safe from accidental breakage. The stick may be hung on the farther hook when racking pipe, to further insure its safety.

The hooks are also useful for tying back jerk-line or auxiliary lines, for coiling them clear of the floor when washing down and, when it is equipped with special bail, for supporting the thread dope bucket while doing normal drilling.

THE DRILLING RIG . . .

4. BLOWOUTS

Nipple, Valve and Lift Provide Safeguard

Racked in hole at side of floor, unit is available on short notice for pipe stop.

A SHORT safety joint made of a piece of drill pipe equipped with a high-pressure shut-off valve used as safeguard against blowouts may be placed at a convenient location on the derrick floor, designed mainly for use when high-pressure formations are penetrated while drilling or when pressures reduce mud weight and threaten to cause blowout while pulling pipe from the hole. The safety device is constructed of drill pipe the same size as and having identical tool joints with the pipe in the hole to facilitate making emergency connection.

The joint may be of any length, but is preferably short enough to permit manipulation by the drilling crew. Near its upper end, a high pressure gate valve is placed to allow closing off the flow, while to a short nipple and bull plug at the top is placed a bail for connecting catline for lifting.

When pulling pipe out of the hole, if the mud starts blowing and high pressures are expected, the safety device is quickly lifted from its usual location by means of the catline which is tied to the bail, and is swung into place over the rotary. The joint is then connected to the box on the top joint of pipe still in the hole.

5. LIGHTING

Shale Shaker Control Aided by Good Light

A FLOODLIGHT may be directed on the shale shaker and mud-return ditch to enable night drilling crews to examine mud returns and to observe more closely proper proportioning of chemicals admitted. Such a floodlight is easily erected on a suitable support,

Adjustable flood unit concentrates beam on mud flow into shaker at water tap.

a simple one being a 10-foot joint of 1½-inch pipe, which allows ample height for the light and at the same time offers a light-weight device which is easily erected or moved.

A bushing at top of the upright support is fitted to a short ½-inch nipple on which the light is attached by means of a bracket support. The nipple is loosely connected, and the light is easily turned by hand because the free fit acts as a swivel. The bracket on the light is attached to its sides to allow up-and-down motion and permits universal direction of its beam.

The post is driven into the ground sufficiently to assure a firm support for the light. Direct connection with the rig-illumination system provides power. With light rays striking the shaker and the stream of chemicals being admitted to the circulatory system, the mud man is easily able to ascertain mud characteristics or examine cuttings.

6. SAFETY

Chain for Bit Quench Insures Proper Stance

CABLE-TOOL bits usually are leaned against the wall of the boxed-in side of the derrick when standing in the quenching trough, and thus constitute an accident hazard. A driller in the Reed City, Michigan, field mounts an angle iron on a bracket over the trough, with notches cut through the upper web of the angle so that a chain may be hooked in any pair of notches, depending upon the diameter of the bit being worked, so as to hold it vertically in the tub.

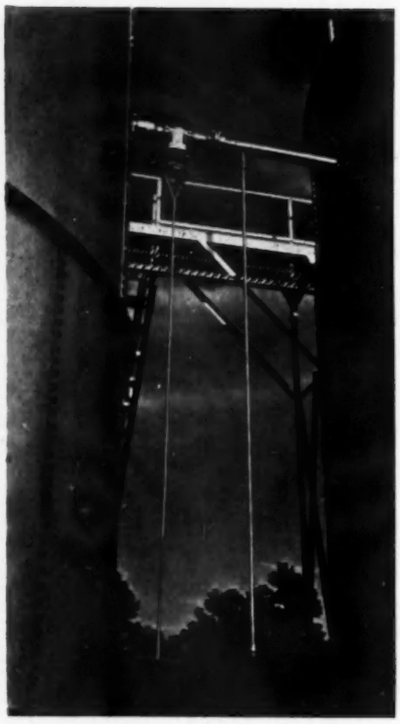
Use of the notched bar and chain tie-back also insures uniform level of quenching fluid around the bit.

Angle-iron bracket with notches for engaging chain support permits close grip.

PRACTICAL OPERATING HINTS FOR

1. TANKAGE

Bleeder Permits Check Of Liquid Transferred



Drop nipple on tie-in between tanks provides sampling line for quick flow check.

OVERFLOW lines between gunbarrels and stock tanks may be provided with bleeders to determine nature of overflow and in so doing, prevent entrance of water or basic sediment into stock tanks. A hole is cut into the line, suitable for welding a short ¾-inch nipple to which is added, by means of a collar, a joint of ¾-inch pipe which extends close to ground level within reach of pumper. At the bottom a valve is provided to control flow through the bleeder.

By opening the valve, the pumper drains a sample of the overflow and ascertains the constituents of the fluid entering the tanks, preventing accumulation of undesirable fluids. Thus proper time for draining or cleaning gunbarrels is determined, improving quality of oil taken by the pipe lines without necessity of climbing to tops of the tanks to secure the information.

On a one-well hookup where the tank battery consists of a gunbarrel and a single storage tank, a valve may be placed on the overflow line to regulate flow into tank, with a provision for its operation from the ground by constructing on the valve wheel an elongated handle from a joint of ½-inch pipe with the bottom equipped with a tee into which are screwed two 4-inch nipples. Opposite end of the small pipe is split into a "Y" by welding two 6-inch nipples to the end at 45° angles. Open ends of the "Y" are attached permanently to opposite sides of the valve wheel. By using the lower nipples for a handle, the valve is manipulated from the ground. Flow through the line is terminated when tank is filled, and during time oil is being drained for the pipe line, well flow is retained in the gunbarrel. After tank is emptied, control valve is opened from the ground.

THE practical operating hints for the drilling rig and production man, appearing in these features each week, are secured from oil fields everywhere and offer suggestions that will help to improve field efficiency and safety. The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, THE OIL WEEKLY, Houston."

2. SERVICING

Hold-Down Sheave Snubs Line Whip

ON a well where locale necessitates placing the pulling machine some distance away for rod and tubing jobs, a sheave is used to keep a slight tension on the line to prevent whipping, and to serve as guide between the machine and snatch block at base of derrick. The sheave is mounted on two concrete bases spaced about two inches apart, with the line running between.

A concrete base is provided, made of two 18 x 36-inch sections, with about two inches above ground level. Across the 2-inch groove between the blocks, the sheave is placed, between two steel plates rising vertically from the concrete and imbedded in it. The pulling line is threaded under the sheave, which is aligned with the machine and the snatch block, and the line moves in the groove between the concrete blocks. The sheave operates at almost ground level.

Position of the sheave close to the ground puts tension on the line as the drum on the machine as well as the snatch block is elevated slightly. Thus whipping of the line is averted.

The sheave acts to snub whip in case of line breakage at maximum flexure under derrick.

Heavy concrete blocks and precast brackets for bearing pin keep sheave close to ground and remove menace of elevated pulling line and possible accident cause.

THE PRODUCTION MAN...

3. GAS METERING

Volume Flow Formula Simplifies Checking

CALCULATING formulas for volume flow of gases requires considerable time where the quantity flows are variable and it becomes necessary to make close calculations.

A time saver for multiplying out the meter readings with pressure and coefficient is to multiply out the coefficient times hours consecutively by two, three, four, on up to nine and set these down on a permanent reference sheet. After the square root has been read from available tables for such meter calculations, and when the coefficient is ready to be used as a multiplier all that is necessary is to copy down from the permanent sheet the number corresponding to the multiplier digits in regular multiplication order.

When U-tube type flow meter is used formula,

$$V = \sqrt{h\ (A + P)} \times C$$

V equals square root of H times (P plus A) times C, gives the discharge pressure in cubic feet; if the flow is to be controlled and it is desired to know how to set the water column, then the same formula can be used as follows:

$$H = \left(\frac{V}{C}\right)^2 \div P.$$

V = Volume of flow
H = Water Column
P = Well Pressure
A = Atmospheric pressure
C = Coefficient (hourly or greater as used)

As these volumes are figured they can be set down in a pocket size book in columns of ten for conveninent reference where it is necessary to recalculate the same volumes from time to time.

4. LIGHTING

Lease Piping System Utilizes Natural Gas

NATURAL gas from nearby wells is used for illumination of property near the field office and warehouse in one oil field, furnishing protection at night against prowlers as well as supplying light for company employees. A ½-inch line conveys gas to all areas where illumination is desired, including a large pipe rack and equipment shed.

Chain control of fixture valve gives local control of light, with continuous pilot.

The distribution system gathers gas from wells in the field and conveys it throughout the area illuminated. The line is equipped with tees and is tapped by vertical ½-inch pipes about 12 feet long, with top of each turned downward in a wide "U" to which is attached a gas-burning lamp. Suspended from an "on" and "off" valve on the lamp are 2-foot chains with small rings on the ends. At night, the lamps are lighted by inserting a hooked rod into one ring and pulling the chain which opens the gas valve and automatically ignites the light. The second chain provides a means to extinguish the flame.

Whenever possible the upright gas pipes supporting the lamps are placed adjacent to a post of the fence which encircles the area, and are bolted or wired to it for support.

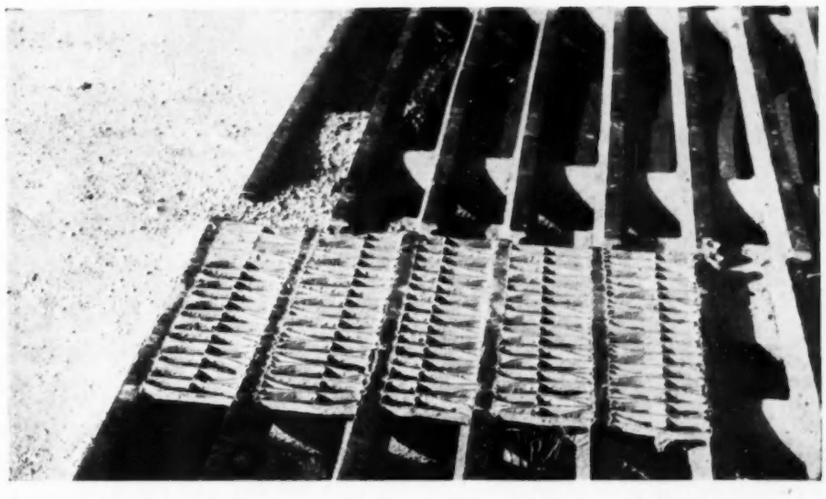
5. YARD SAFETY

Guard Filler Sections Remove Lease Hazard

WHERE pipe or old railroad rails are spaced on pipe supports as cattle guards at entries to leases, spacing must be such as to prevent use by stock, which at the same time makes for hazardous travel by a man on foot.

To permit the closing of gates in the center of such a guard, one company cuts small sections from expanded metal flooring and wells these sections between the guard bars on the lease or inside portion of the guard out as far as the locking device for the gates. This standing permits a man to close the gates in safety, and at the same time still leaves gap enough to discourage quadruped use.

Use of the expanded flooring automatically provides for disposition of any mud tracked onto the guard, and so removes the possibility of accident through slipping.



Cut to fit between the rail heads, these sections of station steel flooring are slip-proof, and enable the closing of heavy gates without risky balancing feats.

THEY SANK 3 wells

—TO AN AVERAGE DEPTH OF 3229 FEET

—IN AN AVERAGE DRILLING TIME OF 10⅓ DAYS

—AT AN AVERAGE FUEL COST OF $150

ECONOMICAL POWER may not be as important as *dependable* power in the busy life of a contract driller working against time. . . . But with "Caterpillar" Diesel Engines he gets BOTH.

Witness the above fine record of this "Caterpillar" Diesel-powered mast-type "Emsco" rotary rig under the able direction of the C. C. Nelson Drilling Co. It was achieved on three wells near Russell, Kansas — and shows that under-surface hole was made at the very satisfactory average speed of 312 feet a day. Fuel cost for the two powerful "Caterpillar" Diesel D13000 Engines averaged about $14.50 a day — or less than 5c a foot.

All of which proves that you get real ECONOMY when "Caterpillar" Diesels power the job. . . . Economy that comes from a highly efficient fuel system (see descriptive highlights at right)—and from decisively low maintenance.

It proves, too, that with "Caterpillar" Diesels you get SPEED. . . . Speed that comes from the in-built ruggedness and stamina of these engines . . . from their dependability to keep going twenty-four hours a day . . . and from a replacement-parts and mechanical service that is quickly available and assures maximum drilling hours no matter what the location or how tough the job.

CATERPILLAR TRACTOR CO., PEORIA, ILLINOIS

FOR VICTORY — *Our armed forces have first call on "Caterpillar" production. We thank customers who have suffered delivery delays by giving clear right-of-way to our Victory efforts.*

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REG. U.S. PAT. OFF.

A few of the features which make "Caterpillar" Diesel power outstanding for Stamina, Dependability, Economy and Long Life:

• ***Simplicity.*** No frequent or delicate adjustments. No constant watching or specially trained attendant needed. Easy accessibility for servicing or parts replacements.

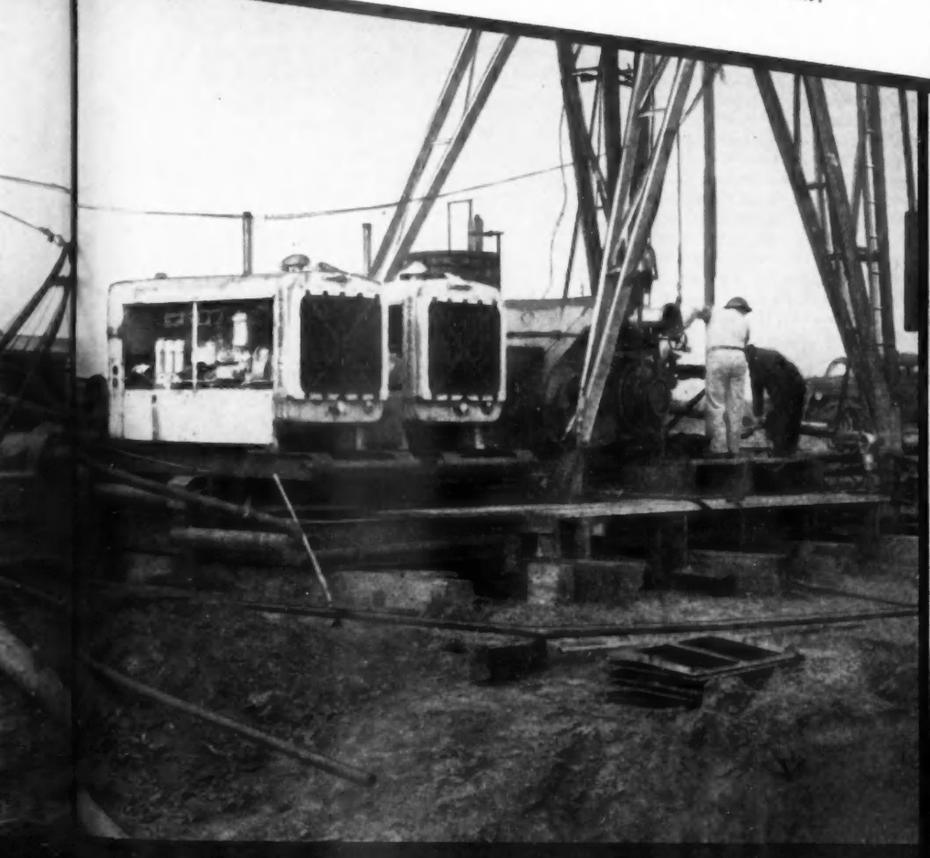
• ***"Hi-Electro" hardened cylinder liners and crankshaft journals.*** "Hi-Electro" hardening gives far greater wear-resistance to these parts than can be obtained by any other practical method of heat-treatment.

• ***Exclusive fuel system.*** Pre-combustion chamber of exclusive design which enables burning successfully, with clean exhaust, a wide range of fuels—including low-cost No. 3 domestic burner oil . . . provides efficient burning of fuel at all loads and speeds. (Engine can idle indefinitely without fouling or choking up, then pick up load immediately without faltering.) Injection pumps and injection valves are interchangeable and are installed without requiring timing, balancing or other delicate adjustments. Injection pumps are individually replaceable. (These engines can also be readily adapted to burn natural gas through an easily installed conversion arrangement.)

• ***Dual engine cooling.*** Both oil and water are temperature-controlled—meaning longer life, lower maintenance for bearings, pistons, rings and cylinder liners.

• ***Superior protection against dirt and grit.*** Combination absorbent and metal-edge type oil filters. Absorbent type fuel filters. Enclosed valve-operating mechanism and flyball governor. Sealed at all points against entrance of dirt.

• ***Quick on-the-job service.*** "Caterpillar" Diesel power is backed by the most complete and readily available replacement-parts and mechanical service facilities of their kind in the oil fields. No operation more than a few hours—and many only a few minutes—distant!



DIESEL

ENGINES AND ELECTRIC SETS • TRACK-TYPE AND WHEEL TRACTORS • ROAD MACHINERY

Oil Field Scrap Program

Can Get Cooperation from Experienced Civic Groups

By ELTON STERRETT
Equipment Editor

OIL fields in the immediate vicinity of cities which have inaugurated drives for industrial scrap conservation may be able to handle salvaged materials through such organizations, or at least to participate in their activities and profit from the pioneering done by the civic group.

Erie, Pennsylvania, and Houston are among the cities adopting plans for intensive industrial conservation, the plans being much alike in outline, and incorporating committees and subcommittees to develop each type of scrap and to deal specifically with the problems of the various industries involved.

The Houston committee is composed of Lum Price, Humble Oil & Refining Company, chairman; F. B. Lane, Reed Roller Bit Company; Arthur S. Cramer, Hughes Tool Company; P. H. Robinson, Houston Lighting & Power Company, and W. H. Llovd, Lloyd pany, and W. H. Lloyd, Texas Materials Corporation.

Objectives

Among the objectives sought by the committee is the appointment of a salvage manager for each plant not already including such official, with one of the duties being the proper designation of scrap and the prompt forwarding of all through proper channels for immediate reuse.

Outstanding factors in the campaign inaugurated by the committee include:

Prompt disposition of abandoned and obsolete machinery and equipment.

Collection daily, continuously, or at frequent stated intervals, of all scrap material in every plant.

Prompt shipment, without hoarding, of scrap and waste materials through existing channels (usually recognized scrap dealers) to steel plants, blast furnaces, foundries and other ultimate processers or consumers.

Scrap WEEK DRIVE ONLY A STARTER

ONE-TIME extensive drives too often are looked upon as permanently curing the conditions for which they are promoted. This is especially true of campaigns such as the official Oil Industry Scrap Week drive that will be inaugurated February 22.

The demand for scrap metals, rubber and other discarded materials in the United States is just beginning to grow, and it will be increasingly necessary to keep every available pound of reclaimable steel and rubber moving back to the mills at a steady rate of flow in coming months. Therefore, the feeling must not be engendered that the industry has done its part when the Scrap Week closes. The drive must be maintained at high tempo thereafter.

Let the scrap collection week be used to ferret out, dig out and bring in old accumulations, but let it serve primarily to set up a system for continuous or at least definitely established periodic handling of scrap. The war will not be won by a short-distance sprint regardless of the record achieved, it can be won only by a long, hard pull, and the prompt steady return of scrap to steel mills is one of the ways in which the oil industry can help most.

Segregation of scrap in the plant, where practicable, as between various metals; this to increase cash returns from buying dealers.

Exercise of all reasonable precautions to keep scrap metal collections free from dirt, splinters, paper, rags or any other factor of contamination which would lower its value or impair its reuse.

The committee and its members are available for consultation regarding scrap problems in the district, and expect to select and have with them representatives of the various types of scrap-producing industries to aid in answering technical questions on scrap disposal.

★ *Get in the Scrap* ★

Put All Metal to Work

A TON of open-hearth steel is 40 percent scrap. That ton of steel, fabricated, becomes perhaps .4 ton of equipment. Even if returned to the origin, scrap turned into oilfield equipment then becomes only .4 x .40 or 16 percent effective. Any material which can be salvaged is worth more to the oil industry, to the steel industry, and to the national effort if reclaimed, than if scrapped. *But,* irreclaimable steel scrap, made available to the steel industry, enables it to turn out 2½ tons of new steel for every ton of usable scrap received. It is time to put all the metals on the lease to work, reclaimed if possible, scrapped and put into circulation if not.

★ *Get in the Scrap* ★

While much criticism is flung at national authorities for having permitted so much scrap to pass to Japan, it should be recalled that during that same time Japan was exporting large quantities of a vital war need to the United States—silk, from which parachutes and powder bags are being fabricated. It looks like a saw-off, after all.

Cut Scrap Red Tape

IF OIL field scrap is to be collected in large quantities, oil companies must set up machinery whereby scrapped parts may be disposed of by their field representatives, be he lease foreman, station engineer or field superintendent.

Inability to dispose of accumulated scrap, even when devoid of reclamation possibilities, is behind the scant courtesy accorded junk men in many instances. To

IT'S THE *foundation* THAT COUNTS!

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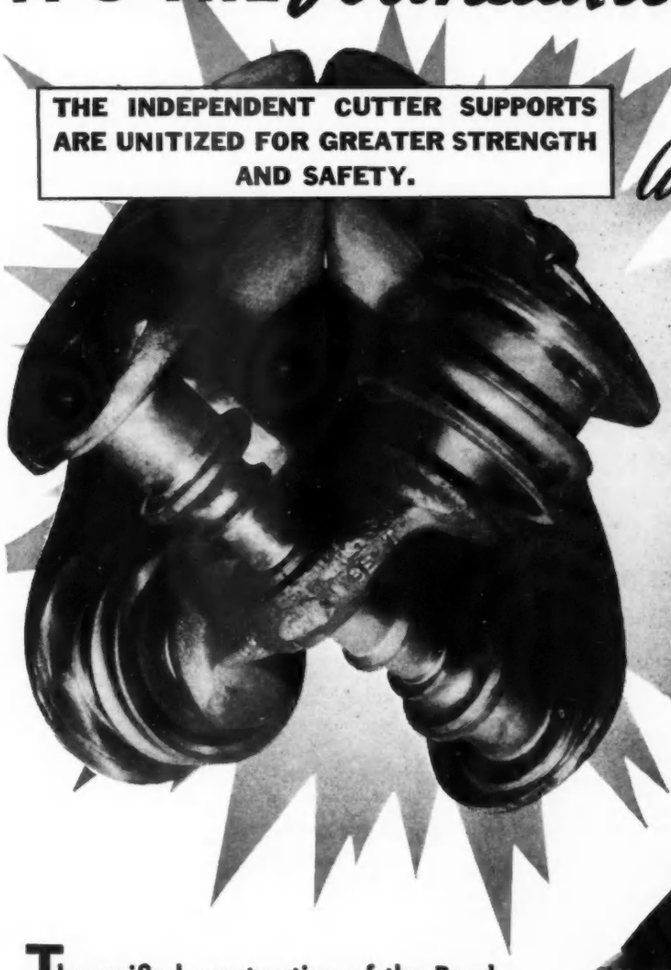

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make this scrap available to the nation's war program and to assist in alleviating the industry's own shortage of steel, oil companies must cut the red tape of their own regulations so as to recognize the decision of the field man as to the usability of the material in question and also revise office accounting methods to provide means of handling scrap accounts.

Cut disposal red tape and much of the oil industry's scrap metal supply will be made available to the steel industry, and in turn more steel will be available for allocation to the oil industry.

Organization Completed for Texas Oil Field *Scrap* Drive

PERSONNEL of the state collection committee to cooperate in the work of scrap-metal and rubber collection in Texas has been announced by Charles F. Roeser, chairman, District 3, Office of Petroleum Coordinator. The committee is composed of chairmen for each county in which the oil industry is active, and designates one or more scrap collections for each county, the chairmen, co-chairmen and collection centers being selected so as to simplify shipping and also to cut down collection haulage as much as possible.

Each county chairman is in charge of and can designate location of scrap collection sites, public weighers, temporary scrap yard, and will be able to give information regarding dates for initial deliveries from each section within his area, and also to cooperate on the contacting of scrap dealers.

Prices for scrap brought to county centers under this drive have been set

TEXAS *Scrap* COLLECTION CHAIRMEN and CENTERS

Collection centers, tabulated by counties, have been chosen for nearness to fields, railroads, etc., and are not always in the county named. Unless otherwise noted the town listed is the address of the chairman.

County and Collection Center — County Chairman, Co-Chairman

Anderson, Palestine, Tom Wade, Tide-Water-Seaboard
Andrews, Odessa,* J. J. Kovach, Continental Supply, and R. B. Harp, Republic Supply
Aransas, Aransas Pass, Walter Brauer, Box 781
Archer, Archer City, T. B. Wilson, Box 505
Austin, Bellville, Max Bader, Austin County Bank
Bastrop, Bastrop, John R. Allen, Box 222
Bee, Pettus, Morris Roberts
Bexar, San Antonio, F. M. Frasher, Alamo Bank Bldg. and J. W. Kaye, Frick-Reid, Alamo Bldg.
Brazoria, Angleton, Louis J. Wilson, First National Bank
Brown, Brownwood, J. E. Whiteside, 1718 Austin
Caldwell, Lockhart, W. W. Lincoln, Lincoln Petroleum, Lockhart, and L. C. Brock, Frick-Reid, Luling
Calhoun, Port Lavaca, W. R. Sells, First State Bank, Port Lavaca, and Howard Scarboro, Fox Rig & Lumber, Kamey
Callahan, Baird, L. L. Blackburn, Pueblo Petroleum
Carson, Pampa,* C. K. Trease, Continental Supply, and L. R. Forker, National Supply
Cass, Atlanta, Henry A. King, Atlanta National Bank
Chambers, Anahuac, Bill Rigers, Fox Rig & Lumber, Monroe City
Cherokee, Henderson,* John Alford
Clay, Henrietta, C. H. Melton, First National Bank
Cochran, Whiteface, M. P. West, Republic Supply, and E. R. Dickison, Frick-Reid, Sundown
Coleman, Coleman, Alex Clark
Cooke, Gainesville, Charles Shinn, Fox Rig & Lumber, and Joe Leonard, Gainesville Register
Crane, McCamey,* Harry Carter, Continental Supply, and R. L. Daniel, Frick-Reid
Crockett, Big Lake,* Charles E. Beyer, Big Lake Oil Co.
Dallas, Dallas, Fred Murray, Oil Well Supply
Duval, San Diego, C. Cuellar, Cuellar Bros.
J. P. Rhodes, National Supply, Freer
L. C. Hancock, Republic Supply, Freer
Eastland, Eastland, Joseph M. Weaver, States Oil Corp., Eastland
Ector, Odessa,* J. J. Kovach, Continental Supply
R. B. Harp, Republic Supply
Fisher, Rotan, Tom E. Patton, Post Refg. Co.
Fort Bend, Richmond, J. R. Farmer, First National Bank
Franklin, Talco,* G. N. Brotherton, Frick-Reid, and P. E. Houston, Republic Supply
Gaines, Seagraves,* H. E. Boggs, Continental Supply, and W. F. Morehart, Frick-Reid
Galveston, Galveston, W. L. Moody
Texas City, J. W. Butler, Texas City National Bank
Glasscock, Big Springs,* B. L. LeFever, Maracaibo Oil Exploration
Bernard Lamun, Frick-Reid
Gray, Pampa,* C. K. Trease, Continental Supply, and L. R. Forker, National Supply
Gregg, Kilgore,* W. T. Hays, Continental Supply, and J. J. Jenkins
Gladewater, Loyce Phillips, Gladewater
Longview,* J. R. Andrews, Continental Supply
Guadalupe, Seguin, Sam Freeman, Amy Oil
Hardin, Beaumont,* Scott W. Myers, Wiess Bldg.
Harris, Houston, Wallace Wilson, Wilson Supply
Hockley, Levelland, A. C. Mattel, Motor Fuels Corp.
Henderson, Athens, A. S. Ford, First National Bank
Hidalgo, McAllen, C. E. Gisler, National Supply, McAllen, and W. G. Jennings, Republic Supply, Sullivan City
Hopkins, Talco,* G. N. Brotherton, Frick-Reid, and P. E. Houston, Republic Supply
Howard, Big Springs,* B. L. LeFever, Maracaibo Oil Exploration
Hutchinson, Borger,* Walter David, Huber Carbon
Jack, Jacksboro, P. R. Tautenhaim, Jacksboro Refg., Jacksboro, L. C. Harper, Bryson
Jackson, Edna, S. G. Drushel, Jackson County State Bank, Edna, W. S. Coffman, National Supply, LaWard
Jefferson, Beaumont,* Scott W. Myers, Wiess Bldg.
Port Arthur, Fred P. Dodge, Texas Co.
Jim Hogg, Hebbronville, H. A. Bradley, Continental Supply
Jim Wells, Alice, A. L. Nelms, Republic Supply
Jones, Stamford, T. A. Upshaw, First National Bank
Liberty, Liberty, J. M. Rich, First State Bank
Limestone, Mexia, Raymond Dillard, J. K. Hughes, Inc.
Live Oak, George West,* W. F. Wallace, First National Bank
Loving, Kermit,* Wm. Loyd, Frick-Reid
Marion, Jefferson, J. R. Rainey, Rogers National Bank
Matagorda, Bay City, John Sutherland, Alamo Lumber
McMullen, George West,* W. F. Wallace, First National Bank
Midland, Odessa,* J. W. House, Humble, Midland
Mitchell, Colorado, Frank Kelly, Magnolia Petroleum
Montague, Nocona, R. L. Surber, Fox Rig & Lumber
Montgomery, Conroe, Thomas Darby, Norvell-Wilder
Moore, Borger,* Walter David, Huber Carbon
Navarro, Corsicana, J. E. Rittersbacher, American Well & Prospecting
Nueces, Corpus Christi, W. E. Young, Continental Supply
Orange, Orange, E. W. Brown, Jr., Orange National Bank
Pecos, McCamey,* Harry Carter, Continental Supply, and R. L. Daniel, Frick-Reid
Polk, Livingston, A. W. Peebles, First National Bank
Reagan, Big Lake,* Charles E. Beyer, Big Lake Oil
Refugio, Refugio, B. Whitehead, National Supply
Rusk, Henderson,* John Alford
Overton,* E. E. Clover, Parade Gasoline
San Patricio, Sinton, L. L. Tatum, Plymouth Oil
Shackelford, Albany, Andrew Howsley
Smith, Tyler, W. G. Byars, Citizens Bank Bldg.
Kilgore,* W. T. Hays, Continental Supply, and J. J. Jenkins
Gladewater,* Loyce Phillips
Henderson,* John Alford
Overton,* E. E. Clover, Parade Gasoline
Starr, Rio Grande City, J. B. Mitchell, Clopton & Mitchell
Stephens, Breckenridge, J. D. Sadler, National Supply
Tarrant, Fort Worth, Lip Norvell, Norvell-Wilder
Taylor, Abilene, J. L. Waltrip, Continental Supply
Titus, Talco, G. N. Brotherton, Frick-Reid, and P. E. Houston, Republic Supply
Tom Green, San Angelo, C. V. Lee, Western Reserve Bldg.
Travis, Austin, James P. Nash, Perry Bldg.
Tyler, Woodville, L. M. Feagin, Citizens State Bank.
Upsher, Longview,* J. R. Andrews, Continental Supply
Kilgore, W. T. Hays, Continental Supply, and J. J. Jenkins
Henderson,* John Alford
Overton,* E. E. Clover, Parade Gasoline
Upton, McCamey,* Harry Carter, Continental Supply, and R. L. Daniel, Frick-Reid
Van Zandt, Van,* M. A. Finney, Pure Oil Co.
Victoria, Victoria, K. C. Lowry, Republic Supply
Ward, Monahans, E. V. Hubbard, Norvell-Wilder Supply
Webb, Laredo, J. J. O'Hern, Box 481
Mirando City,* Con Mims, Border Foundry & Machine
Bruni, J. C. Davis, Republic Supply
Wharton, Wharton, L. F. Worthington, Security Bank & Trust
Wheeler, Shamrock, Roy Reed, Fox Rig & Lumber
Wichita, Wichita Falls, Dave Gray, North Texas O. & G. Assn.
Wilbarger, Vernon, R. B. Anderson, W. T. Waggoner Estate
Winkler, Kermit,* Wm. Loyd, Frick-Reid
Yoakum, Seagraves,* H. E. Boggs, Continental Supply, and W. F. Morehart, Frick-Reid
Denver City, D. S. Harston, National Supply
Young, Olney, L. S. Rhoads, Republic Supply
Zapata, Mirando City,* Con Mims, Border Foundry & Machine

* Means collection center for more than one county.

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for the Texas-New Mexico districts—designated a "remote scrap area" by the steel industry—have been set as of February 2, 1942, at $10.50 per gross or long ton for open-hearth-steel scrap (pipe, chain, tank plate, and the like), and at $15.75 for cast iron in charging box size, or $15.00 for heavy, breakable cast. Cast iron is less $1.00 per gross ton in New Mexico. No deduction should be allowed dealer for sorting, segregating or loading scrap, as all these charges are assumed by the buying mill, as is also rail freight from collection center. Scrap broker's commission is also collected from the mill, and does not come out of the base price approved for scrap as bought in the field.

Storage Suggestions

WHILE we are driving to collect vital scrap materials, the conservation and proper storage of essential products and equipment already on hand is equally important. Rubber, under certain conditions a perishable product, must be given special attention in its storage, as follows:

Keep rubber goods in a cool, dry place; avoid loft space under a roof.

Protect rubber from direct sunlight, or, if necessary, ultra-violet rays; these tend to harden and crack the material.

Keep rubber goods away from plant smokes, fumes, etc.

Strong acids, bases, or the fumes from either are harmful to rubber.

Do not hang elastic materials over nails, screws or other sharp edges. In the case of belts, the broad sides of boards, preferably curved, are acceptable.

Avoid constantly circulating air and ozone.

Protect rubber stocks from oil, solvents and greases.

Do not rest heavy materials on rubber stocks.

Check condition of rubber stocks regularly.

Do not discard used rubber material—save it for reclaiming.

★ *Get in the Scrap* ★

E. H. Moore, of Tulsa, has made a trip to Washington to discuss with government officials the organization of a scrap-metal campaign in Oklahoma. This step was taken at the request of Governor Leon C. Phillips with the understanding that Moore direct any practical plan found acceptable.

Keeping Men *Scrap* Minded Is This Company's Policy

ORGANIZATION of an oil company for scrap and salvage handling is necessary before waste materials can be made to flow regularly into reclamation channels. Humble Oil & Refining Company collects all scrap as formed. That is, as old material is replaced by the maintenance men, the scrap is thrown on the truck and brought in to the district, lease or other unit warehouse at once—not left to await the sporadic cleanup which often hits only the high spots.

To insure the return of all scrap, all members of the organization are kept "scrap conscious" by frequent talks on scrap and salvage at safety and other group meetings, by means of posters and bulletins on display at offices and in other places where the men gather, and by training gang pushers, foremen and others to consider scrap collection as a part of their duties. Such watchfulness for salvage material provides an executive check against the normal tendency of the workmen to throw away the old and, to him, unusable material he is replacing.

Accumulated material in the warehouse is checked for usable or reclaimable material, tong jaws, drill collars, alloy steels, chain and all non-ferrous items set aside, and the remainder held for periodic sale, weekly or monthly, as the volume accumulated dictates.

On such material the man in charge of the district obtains bids from at least two (unrelated) scrap dealers, and refers such offers to the center for scrap disposal, at the main offices of the company in Houston, where final decision as to acceptability of bid and handling details is made.

When price approval is received, the successful bidder is notified, delivery made, and payment forwarded to the company.

Wherever possible, sales are made either to dealers who are delivering scrap to firms engaged on orders for the company, or to those whose allocations of stocks permit the most direct return of such scrap tonnage in the form of most urgently needed equipment.

Such a scrap collection and disposal system is most effective by reason of its reaching and being understood by every member of the organization, and because the material is not allowed to pile up long enough to become accepted as part of the usual scene.

★ *Get in the Scrap* ★

Scrap NOTES

• • • Scrap value is not always apparent to the man in the oil fields. During the push to obtain production near Pampa, Texas, worn-out wire lines were disposed of by throwing them into nearby ravines. When scrap prices went up these old lines, buried under stream-borne detritus, were actually dug up, baled or bundled, and brought a profit of $2.00 a ton.

• • • How long is a ton? This is a question brought home to the oil industry by the drive to collect scrap metals. Only the long ton, of 2240 pounds, is used in the scrap industry, or 1.12 short tons as used in the computation of all weights measured by oil men. Or, looking at it the other way, each 2000-pound ton of scrap collected on the lease becomes only 0.893 ton when bought by the junk man.

• • • Largest tonnage of scrap in the oil industry accumulates at the refinery, next in drilling, followed by production and transportation in that order. Refinery scrap is usually located near rail or water transportation, while other scrap sources may lie far from common carrier systems. It is the far-flung scrap which is sought in the nation-wide drive.

• • • Except where original parts are too heavy for convenient handling, scrap dealers prefer that scrap be left intact, not broken up. Such handling, particularly of castings, increases difficulty of identification when sorting materials with consequent slowing of operation in the plant eventually melting down the reclaim.

A. I. M. E. Annual Meeting

War influence, government relations, economic trends and technological progress discussed

By J. V. HIGHTOWER, Staff Writer

INDUSTRY in relation to the war was a prominent subject among the technical papers and in the course of discussions during the convention of the American Institute of Mining and Metallurgical Engineers in New York, February 9-12. The convention was well attended, although a few officials and authors of papers who had planned to be present could not attend because they were engrossed with war work. Among these was Harry P. Stolz, of Stanley & Stolz, Los Angeles, the newly elected chairman of the Petroleum Division.

Problems of the oil industry, and papers dealing with newer refining processes for manufacture of war materials received much attention. The governments relations with the industry were discussed in several papers by oil men at present associated with the Office of Petroleum Coordinator.

New Institute Officers

Registration began Monday at institute headquarters. The first general get-together occurred Monday evening when the annual dinner-smoker and gathering of alumini groups was held in the Waldorf-Astoria Hotel with the accompaniment of a stage show. On Wednesday evening, in the course of the institute's annual banquet, at the Waldorf-Astoria, John R. Suman, vice president and director of Humble Oil & Refining Company, Houston, turned over the presidency of the institute to Eugene A. McAuliffe, president of Union Pacific Coal Company, Omaha, Nebraska. McAuliffe is the fifty-ninth president. Born in England on October 3, 1866, he came with his parents to this country in 1872. He became a shop apprentice with the Northern Pacific in 1886, and for 15 years was a railroader in the United States and Mexico. In 1903 he became fuel agent of the Frisco and has been associated with fuels since that time. After holding executive positions with several coal companies he became president of Union Pacific Coal Company and several other organizations. McAuliffe has been an adviser to various government agencies in connection with fuels. He holds the honorary degree of doctor of engineering from Missouri School of Mines and Metallurgy for service in the coal industry. He has been a director and vice president of the AIME and was long associated with the coal division.

Vice presidents and directors of the institute elected this year are: Chester A. Fulton, president Southern Phosphate Corporation, Baltimore, and L. E. Young, consulting mining engineer, Pittsburgh. Directors are: Charles Camsell, Department of Mines and Resources, Ottawa, Canada; C. A. Garner, vice president Jeddo - Highland Coal Company, Jeddo, Pa.; William B. Heroy, president Pilgrim Exploration Company, Houston; Wilber Judson, vice president Texas Gulf Sulphur Company; L. F. Reinartz, manager American Rolling Mill Company, Middletown, Ohio, and Francis A. Thomson, president Montana School of Mines, Butte.

Petroleum Division Officers

The following officers were elected by the Petroleum Division: Chairman, Harry P. Stolz, Stanley & Stolz, consulting engineers, Los Angeles. Associate chairmen (3) W. S. Morris, East Texas Engineering Association, Kilgore; Veleair C. Smith, consulting engineer and geologist, Charleston, West Virginia, and Charles A. Warner, engineer and geologist, Houston Oil Company, Houston. Secretary - treasurer, Harold Vance, petroleum engineering department, Texas A. & M. College. Harry P. Stolz was named chairman of the executive committee, the committee including C. J. Boberly, president Kobe, Inc., Huntington Park California; R. B. Kelly, division manager The Pure Oil Company, Olney, Texas; F. B. Plummer, University of Texas; C. E. Reistle, chief petroleum engineer, Humble Oil & Refining Company, Houston, and E. A. Stephenson, University of Kansas, Lawrence, Kansas.

Following are the new chairmen of standing committees of the Petroleum Division: Production Engineering, C. H. Keplinger, Shell Oil Company, Tulsa; Associate Chairman, Production Engineering, E. K. Parks, consulting geologist and engineer, Los Angeles; Production, B. B. Zavoico, Chase National Bank, New York; Associate Chairman of Production, M. T. Halbouty, consulting geologist and engineer, Houston; Associate Chairman of Production, Winthrop P. Haynes, geologist Standard Oil Company (New Jersey); Engineering Research, P. E. Fitzgerald, geologist Dowell, Inc., Tulsa; Economics, Norman D. Fitzgerald, Chase National Bank, New York; Refinery Engineering, Walter Miller, vice president Continental Oil Company, Ponca City; Membership, Paul Weaver, geologist Gulf Oil Corporation, Houston; Papers and Program, Stuart Buckley, Production Research Department Humble Oil & Refining Company Houston; Associate papers and Program, E. G. Trostel, petroleum engineer Union Oil Company, Santa Fe Springs, California.

During the annual banquet, medals were awarded to three members of the metallurgical industries. None were scheduled for presentation in the petroleum industry, the Lucas medal not being given this year. Principal speaker of the evening was Max W. Ball, president of Abasand Oils, Edmonton, Canada, who spoke on "Anglo-American Responsibilities." He called for close cooperation and understanding among Americans, Britons and Canadians.

An exceptionally full and interesting group of papers and addresses on petroleum economics was presented. The Office of Petroleum Coordinator in Washington was represented by Dr. E. DeGolyer, director of conservation in that office, and Wright W. Gary, director of refining. Subjects dealt with all phases of the oil industry from production to marketing, and are abstracted later in this article.

In the production field, DeGolyer stressed the need of better production methods, cited striking instances of good and bad production practices and pointed out that excessive waste of casinghead gas occurs in some fields and should be stopped. Effect of economic factors on oil prices, a subject presented by H. J. Struth, economist, Texas Mid-Continent Oil and Gas Association, brought in the relationship of economics and taxation to oil production and discoveries.

Relative to refining, Gary discussed the present status and future course of 100-octane aviation gasoline production and considered that after the war, demand would be maintained for this specialized product. A paper by J. F. Thornton and W. C. Dickerman, Jr., The Lummus Company, discussed modern refining processes with particular reference to production of ingredients of high-octane gasoline and selection of specific processes for particular situations.

On the subject of economics of long pipe lines a paper by E. G. Hill, Ford, Bacon and Davis, New York, showed that marked economics in investment and operating costs could be obtained by utilizing lines of large size.

The Petroleum Division's new chairman, Harry P. Stolz, could not be present to assume office during the division's annual dinner held February 12 at the Roosevelt Hotel. Stolz is in the Naval Service in California. In behalf of Stolz, C. J. Coberly took over the chairmanship from the outgoing chairman, Eugene A. Stephenson.

The Petroleum Division dinner was decidedly a light-hearted affair this year. E. J. Kennedy, assistant to the secretary of the institute in New York, said he had attended many petroleum dinners but had never seen such good will and wit as flowed during the dinner last week.

Among those at the speakers table in addition to Coberly and Stephenson, were John R. Suman, outgoing presi-

dent, John M. Lovejoy, J. B. Umpleby, E. DeGolyer and James Terry Duce.

The after-dinner speaker was Ray L. Dudley, president of The Gulf Publishing Company, whose subject was "Wanted — Petroleum Leadership." Full text of this address appears on page 15.

Suman, speaking briefly as retiring president of the institute, declared he had visited 27 sections of the institute during his incumbency and felt that it was a highly profitable achievement.

A feature of the dinner was the showing of Humble Oil & Refining Company's color and sound movie "Oil," an instructive and interesting film describing the oil production industry. The movie operator was Carl Reistle, Jr., who had to qualify for this task by purchasing what was described as a "complete deck" of licenses permitting him to be a movie operator in New York.

Technical sessions emphasized the mathematical treatment of oil field performance, indicating that progress is being made in the increasing studies devoted to scientific methods of understanding and prolonging the life of oil pools. These papers showed that factors in field performance can be reduced to mathematical relations of great value.

The numerous applications of recently introduced well calipers logs, which provide information on the variations of hole diameters from bit size, were outlined in another technical session paper. Variations were shown to be marked under numerous circumstances, and these data provide accurate and valuable information, not only for determining the amount of cement needed for specific jobs but also for stratigraphic correlation work. Abstracts of technical papers appear on a following page.

War put a damper on papers and discussion in the symposium devoted to foreign oil operations. The majority of the small number of papers presented were quite short and incomplete, while a few were given as "off the record" comments. Abstracts of written papers are published on one of the following pages.

The symposium on United States 1941 developments was as complete and thorough as usual. These papers and data will be published in the Institute's "Petroleum Development and Technology" annual book.

Economic Sessions Told War Will Bring Many Changes to Industry

Conservation

By E. DeGolyer
Director of Conservation
Office of Petroleum Coordinator, Washington

Fundamentally the problem of conservation in the production industry is to obtain maximum production with the least loss and the minimum use of steel and other critical materials. Conservation is one of the vital elements in the question of supply. Conservation is being worked out from various angles. Wide well spacing and pressure maintenance is essential, and in new drilling the 40-acre spacing pattern is advisable to make available field equipment to go around. Wells should be kept flowing as long as possible.

With respect to above-ground waste in the fields, the largest single waste occurs in production of excessive volumes of gas and burning that gas in flares. Gas should be kept underground in solution as far as is possible, since it serves the double function of keeping the viscosity of gas-oil mixtures low and driving the oil from the formation into the well. Just what the waste of casinghead gas is, is hard to estimate, but inasmuch as the oil industry is becoming a chemical industry, much gas that could be used in chemical manufacture is being lost. It is considered that in Texas at least three quarters billion feet of dry and casinghead gas per day is burned in flares.

Underground waste is hard to control because the producer works such a long way from the producing pool. He has a few indices of production efficiency, however, one of these being rate of production. According to any rational theory, wide-open production is obtained at the cost of loss of ultimate recovery of oil. Good examples of good and bad production practices are seen in the Hobbs, New Mexico, field, and the Tinsley field in Mississippi. Controlled production has been followed in Hobbs but not in Tinsley. In the Hobbs field, where bottom-hole pressure was originally 1500 pounds, production has been in progress for 13 years with a pressure drop of less than 400 pounds, and 85 percent of the wells (spaced 1 per 40 acres) are flowing. On the contrary in the Tinsley field, where bottom-hole pressure was originally about 1900 pounds, pressure loss in 2½ years of production has been 1000 pounds, and none of the wells (spaced 1 per 17 acres) are flowing.

Effect of Economic Influences Upon Oil Prices

By H. J. Struth
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The swing of the oil industry's economic pendulum has been shortened. Within the last 11 years crude oil and product price movements have responded to economic influences to a more limited degree, and at lower levels, than was the case in 16 prior years.

At last year's rate of crude oil production, our present proved oil reserves constitute nearly 14 years' supply. In the first World War period we had nearly 18 years' supply at then existing rates of demand and production. A net gain of 13 billion barrels added to the 1916 proved reserve of 6 billion makes our present proved reserve about 19 billion barrels. It is well known, of course, that the search for new oil supplies is most active during periods of relatively high oil prices. Practically all our most prolific areas have been found under the impetus of rising oil prices. The number of dry holes drilled is perhaps one of the best indices of exploratory activity.

Over 30 percent of our oil producing properties will never pay out the capital invested in them; and the only way the producer may recover at least a part of his capital is through the depletion provisions of the present federal income tax laws. It is apparent that the price incentive for exploratory effort could become nullified entirely if producers were deprived of the existing depletion provision. Drilling and discovery records show that during the 1926-1930 and the 1936-1940 periods, quantities of new reserves found per dry hole drilled were, respectively, 385,000 barrels and 189,000 barrels. These facts indicate new reserves are becoming increasingly hard to find. On the basis of proved reserves on January 1, 1939, which apparently totaled about 20,800,000,000 barrels, and considering the subsequent discovery of about 2,300,000,000 barrels of new reserves exclusive of extensions and revisions, along with attendant production of 4,023,000,000 barrels in the last 3 years, it is apparent that our underground inventory has been reduced to the extent of 1,723,000,000 barrels during the 3-year period.

If 30,000 wells were drilled in 1942, dry holes probably would total about 6600. If 150,000 wells were drilled in the next 5-year period, dry holes probably would total 33,000. Since new discoveries over the last 6 years have been at the rate of about 170,000 barrels per dry hole, it is apparent that such a program might result in the discovery of only about 5½ billion barrels of new reserves between 1941 and 1945. Under normal conditions it would be necessary to find between 7 and 7½ billions of new supply during this 5-year period in order to keep reserves at their present level. If new well completions this year are restricted to but half the number recently projected as necessary, which is more than likely in view of spacing rules and shortage of materials, we may only drill 3300 dry holes in exploration and may not find more than 300 to 500 million barrels of new reserves this year. On a 5-year basis, such small discoveries, even with reduced civilian demand, would result in further reduction in the cumulative underground inventory.

When normal conditions return, it seems likely that there will be a closer relationship between internal economic conditions in the oil industry and the movement of oil prices. East Texas as a market factor has begun to exert less influence on the industry's price structure than is shown to have been the case between 1931 and 1935. Consequently, we may anticipate a closer correlation between supply-demand ratios and crude oil price movements than has existed for several years following discovery of the East Texas field. Whether

this is realized immediately or not depends largely on events developing in the current emergency.

100-Octane Aviation Gasoline, Present and Future

By W. W. Gary
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Lessons of the war have already taught that ultimate victory will probably go to the side which has superiority in numbers of planes, plane design and fuel, and without superior fuel the other superiorities are hard to obtain. The oil industry faces mass production of superior fuel. Within the past six months, projected demand for aviation gasoline has doubled, trebled, quadrupled and is still rising.

The basic constituents of 100-octane fuel are generally considered to be: a base gasoline, high-octane blending agent, light blending agent and tetraethyl lead. With the exception of lead, some of the foregoing materials vary in quality, so that different percentages of each constituent are needed to make a 100-octane fuel. A base gasoline is generally a high-octane material of suitable boiling range distilled from crude or natural gasoline. Supplies of base gasolines are limited, but can be augmented by such processes as catalytic cracking, hydroforming, isomerization and other new processes which require costly investments and specialized plant facilities. The term "high-octane blending agent" generally means a material synthesized from selected refinery gases produced as by-products. The supply of blending agents is limited. A "light blending agent" is the low-boiling material needed for proper volatility of the finished aviation fuel. So far it has come largely from selected fractionation of oil field gases and special distillation of ordinary gasolines. The supply of light blending agents is limited but can be increased by such processes as catalytic cracking, isomerization, polymerization and alkylation.

Aviation gasoline quality has a vital bearing on air engine performance. Some of the advantages of 100-octane fuel are: about 26 percent more power at take-off than is possible with 91-octane, an increase of several thousand feet in flying ceiling, and reduction of motor weight by as much as 40 percent as compared to operation with 91-octane fuel.

We are considering fuels of above 100-octane today. They can be made in any 100-octane plant, but volume of production is proportionally reduced. Supply vs demand will largely dictate qualities better than 100-octane, but the refining industry can provide the air forces with real air supremacy.

Economics of aviation gasoline manufacture vary considerably because of two main factors: size of plant and kind of process used. A large volume in any given plant demands a substantial crude throughput. Effort has been made to increase production of aviation gasoline per barrel of crude so that small plants can make this fuel. Studies have involved collection of refinery gases, consolidation of polymer gasolines from small refiners in a central plant, and delivery of such charge stocks as gas oil and reduced crude to a central catalytic cracker and alkylation plant. Economic studies have indicated that the central catalytic cracking unit has several advantages with respect to investment per barrel of 100-octane, operation costs and greater incremental output per barrel of crude. Such a plant can produce in a single unit over 10,000 barrels daily of aviation fuel, thus cutting need of construction materials.

As to future disposition of 100 octane fuel after the war, it is a personal view that this fuel will be consumed in the following ways: (1) In the conservation of crude, automobiles will be built to use this fuel. Such cars are being designed. (2) The public will fly more. (3) Planes will be used after the war for world-wide passenger and freight service. (4) For various reasons, nearly all 100-octane production will be centered in this country after the war, and the world will buy it.

The future of 100-octane fuel is not a dark one.

World Consumption of Petroleum and Its Substitutes in 1941

By V. R. Garfias, R. V. Whetsel and J. W. Ristori
Cities Service Company

Figures of World consumption of petroleum and its substitutes in 1941 which obviously are largely conjectural, are estimated at 2,066,653,000 barrels. It is 48,689,000 barrels more than the previous year and is an all-time high. This figure except for the United States, does not include consumption for military purposes. Consumption in the United States also reached an all-time high during 1941, totaling 1,492,000,000 barrels, or 158,230,000 barrels more than the previous peak year of 1940. On the other hand, it is estimated that civil consumption in countries outside of the United States decreased 109,541,000 barrels as compared with the previous year.

Demand for military purposes and/or additions to stocks in countries outside the United States is estimated at 304,507,000 barrels during 1941 compared to 209,635,000 barrels in 1940. This increase was due largely to blitzkrieg warfare on several fronts especially Russia which resulted in large expenditures of petroleum by both sides due to the immense area covered by the fighting forces, the long supply lines necessary and the intensity of the fighting.

It is interesting to note in this connection that Axis-controlled countries, excluding Japan, had an estimated production of approximately 89,000,000 barrels of petroleum and its substitutes in 1941. The peacetime consumption of these countries in 1938 for example, was about 183,000,000 barrels. It is believed that the minimum to which civil consumption could possibly be reduced in war time is 20 percent of peacetime, which would call for a minimum consumption in these countries in 1941 for civil purposes of 37,000,000 barrels. This would leave a balance of only 52,000,000 barrels or 142,000 barrels daily available for military purposes in 1941 and any additional supplies must come from storage.

Regarding Japan if we take 20 percent of its 1938 civil demand of petroleum and its substitutes, which consumption was already then substantially reduced because of the war with China, we would arrive only at 5,000,000 barrels. The 1941 production of petroleum and substitutes is estimated at 8,200,000 barrels, leaving 3,200,000 barrels, or 8800 barrels daily for military purposes, indicating the almost certainty that Japan must either capture new sources of supply or continue to make storage withdrawals.

Petroleum Problems of the Axis Powers

By W. B. Heroy
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It is unsafe to underestimate the abilities of the Axis scientists and engineers in this matter of oil supplies and refining resources. For years Germany and Japan have studied their oil industries from the military standpoint and it is unlikely that those governments would have decided on war unless they felt their oil resources could meet probable requirements.

Statistics on the oil stocks and manufacturing capacities of Germany, Italy, and Japan are difficult to obtain and are highly speculative. Italy is the weakest of the Axis group, being largely dependent on Germany and Albania for oil, and both these sources can not supply Italy with much. Germany, however, thanks to the invasion of Rumania, Poland, Austria and France, has secured appreciable oil supplies both refined stocks and crude. These seizures, together with her synthetic manufacturing plants are enabling Germany to carry on the war and Germany is not in a

World Petroleum Balance Sheet

(Thousands of Barrels)

YEAR	Production of Petroleum and its Substitutes	[1]Civil Consumption of Petroleum and its Substitutes	Excess Production Over Consumption			United States		Foreign Military Consumption and Additions to Stocks
			United States	Foreign	World Total	Excess Exports Over Imports	To Stocks	
1932...	1,362,039	1,348,407	[2]13,011	26,643	13,632	28,781	[2]41,792	55,424
1933...	1,467,128	1,406,923	67,427	[2]7,222	60,205	60,254	7,173	53,032
1934...	1,562,834	1,507,599	26,164	29,071	55,235	64,013	[2]37,849	93,084
1935...	1,702,793	1,614,475	53,027	35,291	88,318	75,474	[2]22,447	110,765
1936...	1,864,997	1,795,560	52,209	17,228	69,437	74,890	[2]22,681	92,118
1937...	2,121,337	1,914,856	161,445	45,036	206,481	115,677	45,768	160,713
1938...	2,062,090	1,917,758	124,047	20,285	144,332	139,420	[2]9,077	153,409
1939...	2,182,883	2,022,763	86,222	73,898	160,120	134,811	[2]30,082	190,202
1940...	2,266,345	2,017,964	85,461	162,920	248,381	46,715	38,746	209,635
1941...	2,360,160	2,066,653	[2]16,000	309,507	293,507	9,000	[2]11,000	304,507

[1] Includes U. S. military consumption. [2] Reverse.

critical state with respect to oil. Her chief shortage is in good lubricants, although a considerable amount of synthetic is being produced.

Japan is depending on extraction of oil from extensive deposits in Manchuria, a small domestic crude production, a small volume of oil from Sakhalin Island, and a domestic synthetic motor-fuel industry probably totaling 10,000 barrels per day output. Civil consumption of oil is slight. Japan laid up heavy stocks of refined products prior to the war and probably is not faced by an immediate shortage.

Investment in the U. S. Petroleum Industry

By John D. Gill and J. S. Weatherby
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An important question is whether the total investment of the American refining industry is about as it should be in size. The authors' first conclusion was that sufficient facts to answer this question are not available, but on extensive investigation they decided that the investment is entirely justifiable. The fundamental reason in reaching this view is that the industry is intensely competitive. Companies with investments too large generally lose out because of poor returns, and companies with inferior investments lose out eventually because of the poor service and inferior products they have to offer. Over a long period, there have been no serious blunders in the industry's use of capital.

In 1940, the investment figures for the various branches of the oil industry on a gallonage basis were: crude production, 6.07 cents per gallon of crude; refining, 1.67 cents per gallon of refined product; marketing, 2.56 cents per gallon sold.

In the same year, the charge to the public for wear and tear and replacement of equipment was: for refining, 0.18 cents per gallon; shipping, pipe lines, etc., 0.13 cents per gallon; marketing, 0.18 cents per gallon.

It is considered that these costs are entirely reasonable. Over a period of years, the oil industry has been able to drop prices of its products with respect to prices of other industries, to improve quality and to insure continuity of supply.

Petroleum Refining Methods Available For Wartime Demands

By J. F. Thornton and W. C. Dickerman, Jr.
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The industry has found that the most satisfactory 100-octane aviation fuel is a blend of 15 to 20 percent of isopentane, selected base stock and enough high-grade, high-octane blending agent, such as alkylate, to carry the blend to 100-octane with ethyl fluid. Isopentane ordinarily is fractionated from natural or straight-run gasoline, but is present in gasoline from some catalytic cracking units and thermally cracked gasoline. The overall supply of isopentane is adequate.

The base stock used in aviation blends must be of good octane number and high lead response. The material should preferably come from straight-run gasoline fractions and special catalytic gasolines because of their high stability and low gum formation. The supply of base stock must be augmented by such processes as close fractionation of isoparaffins out of gasolines containing these, by catalytic isomerization of naphtha and desulphurization of high-sulphur base stocks to improve their lead response. Such processes are in commercial operation.

Alkylation is the most widely used process for making high-octane blending agents, although selective polymerization of butylenes and subsequent hydrogenation is also available. Among the olefins which will alkylate, the butylenes are preferred. In general butylene and isobutane give the highest octane number product and use the least amount of catalyst. The increased demand for alkylate requires the revamping of existing gasoline plants to give higher recoveries of isobutane and supplementation of this supply with isobutane from isomerization units, thermal cracking units and catalytic cracking units. Butylene production will be raised by various cracking operations and catalytic dehydrogenation. The rising use of butanes and butylene in making alkylate and synthetic rubber will reduce the availability of these materials as bottled gas and their use in motor fuel. Propane may have to be used in many cases to meet motor-fuel vapor-pressure requirements.

The Petroleum Industry's Investment in the United States

Net Investment in United States Petroleum Industry[1] — 1940
Millions of Dollars

DIVISION	Net Plant	Percent	Including Other Assets[3]	Percent
Crude Oil Production[2]	$3,440	51.6	$3,890	47.6
Crude Oil Pipe Lines	431	6.5	476	5.8
Marine Transportation	224	3.4	247	3.0
Refining	897	13.5	1,422	17.4
Tank Cars	92	1.4	98	1.2
Refined Products Pipe Lines	68	1.0	75	.9
Marketing	1,404	21.1	1,872	22.9
Administrative and Miscellaneous	100	1.5	100	1.2
Total	$6,656	100.0	$8,180	100.0

Gross Investment in United States Petroleum Industry[1] — 1940
Millions of Dollars

DIVISION	Gross Plant	Percent	Including Other Assets[3]	Percent
Crude Oil Production[2]	$7,400	54.7	$7,850	52.2
Crude Oil Pipe Lines	982	7.3	1,027	6.8
Marine Transportation	528	3.9	550	3.7
Refining	1,936	14.3	2,461	16.4
Tank Cars	255	1.9	262	1.7
Refined Products Pipe Lines	99	.7	106	.7
Marketing	2,170	16.1	2,638	17.5
Administrative and Miscellaneous	150	1.1	150	1.0
Total	$13,520	100.0	$15,044	100.0

[1] Does not include investment of United States oil companies in foreign countries, estimated by Department of Commerce at $1,075,000,000 (1936 latest figures published).
[2] Includes oil industry's investment in natural gasoline plants—also gas producing properties where inseparable from oil properties, but investments of natural gas companies are not included.
[3] Principally inventories of crude, products, material and supplies and net working capital.

Engineering Economics of Long Petroleum Pipe Lines

By Edgar G. Hill
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This paper is a discussion of the fundamentals of design of long cross-country pipe lines from the economic as well as the engineering viewpoint, describing the effect of volumes transported and the load factor at which the lines are operated upon unit costs of transportation, as well as effect of the nature of the transported fluids upon such costs.

The basic equation for flow of oil through a pipe is:

$$Q = \sqrt{\frac{PD^5}{KG}}$$

where Q = delivery of oil, 42-gal. barrels per 24-hour day,
P = pressure drop, in pounds, per square inch per mile,
D = inside pipe diameter, inches,
K = a factor dependent on volume and nature of the fluid handled and the pipe diameter,
G = specific gravity of the oil with reference to water.

Determination of the most economical pressure drop per mile in design of a long pipe line requires study in each individual case. It depends to some extent on the probable increase in capacity that may be needed later. If a considerable increase is anticipated in the near future, the line usually will be designed with a fairly low pressure drop and wide station spacing. The capacity

can then be raised up to about 140 percent of the original capacity by doubling the number of stations and increasing their installed horsepower in ratio to the increased capacity, without adding any more pipe. However, should the price of pipe at time of construction be high, or cost of construction be excessive, it might be advisable to use a higher pressure drop per mile in design, which would require less pipe per unit of capacity but more pumping machinery. Subsequent higher capacity probably would be provided by looping the line part of the way and also adding to the station horsepower without increasing the number of stations.

The effect of pipe diameter is such that, although large pipe lines cost more per inch of diameter than small lines, they cost much less when considered on a capacity basis.

Viscosity of an oil, because of its effects on required pumping power, is an influential economic factor in pipe-line design. A sample set of calculations based on pumping 17,250 barrels of oil per day through an 8-inch line 200 miles long is presented to show that a crude oil with a Saybolt viscosity of 300 at 60° F. requires the use of 5 pumping stations of approximately 350 horsepower each. On the other hand, a crude of equal density but with a viscosity of only 150 would require but 4 stations of substantially the same horsepower. The oil of heavier viscosity, therefore, not only demands a higher investment in pumping equipment but also requires a greater operating cost because of increased labor, fuel, supplies and maintenance.

In considering the economics of pipe lines for crudes and refined products it is essential that the lines be kept internally clean. Deposits of wax or other material, and roughening of pipe walls by corrosion, both increase the resistance offered by the pipe to the flow of fluid. Instances exist of startling decreases of pipe line capacity because of corrosion. In one 6-inch gasoline line, after 2½ years of operation, corrosion and tuberculation caused the capacity of the line to fall off 25 percent.

Load factor is of importance in overall costs of pipe-line transportation because it costs about the same to own and operate a line of given size and length regardless of the percentage of full capacity at which the line is operated. Probably 80 percent of the total operating costs of a line, including capital charges, is entirely independent of the volume handled.

In order to realize the full potentialties of pipe lines in reducing transportation costs, not only are large-size lines indicated but the lines must be operated at a high load factor. Storage tanks along routes are commonly used to increase load factors; and the use of products lines to handle furnace oils in winter, when gasoline consumption is usually light, is, of course, a valuable help in the same direction. A large line that would operate at 100 percent load factor with a cost of, say, 3 cents per barrel per 100 miles would probably show a cost of about 5.4 cents at 50 percent load factor.

Bottom-Hole Performance Studies Are Feature of Technical Sessions

Calculation of Productivity Factors for Oil-Gas-Water Systems in the Steady State

By H. H. Evinger and M. Muskat
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A method of calculating productivity factors for oil, gas and water systems in the steady state is presented as an illustration of the quantitative application of the fundamental data on the flow properties of heterogeneous fluid systems. Sufficient laboratory research has been done on the fundamental features of the flow of heterogeneous fluids through porous media to call for consideration of what can be done with this type of information. This paper offers one approach to the quantitative application of laboratory data to practical field problems. Because published data on experiments with three-phase fluid systems in porous media are limited entirely to unconsolidated sands, the applications made here will not apply directly to any actual field situation. However, they should show what could be done with fundamental laboratory data if they were extended to cover the field of consolidated sands.

Published productivity factor measurements in California have indicated that factors determined in the field are generally much smaller, by factors of 50 to 100, than those calculated on the radial homogeneous flow formula. It is necessary to inquire how much of the apparent discrepancy can be attributed to the multi-phase characteristics of the flow systems. The present treatment shows the results of such an inquiry. Though the treatment is limited because it is based on data from unconsolidated sands and because certain assumptions differ from those involved in the actual field tests, it is felt the calculations are useful in indicating the order of magnitude of the effect that may be attributed to the multi-phase features of the flow system.

The analytical basis for the calculations involved is the generalization of that previously developed and applied in the study of two-phase systems flowing through porous media. For the general case of a three-phase system such as oil, gas and water, the dynamical equations are obtained by writing an equation of continuity for each of the three phases. The calculations as a whole are intended to illustrate the method of calculating productivity factors. It is to be understood, however, that when the needed data for specific cases are available the adopted simplifications can be dropped and the appropriate changes can be made in the calculations. Experimental data are presented for use with the calculations.

The analysis here undertaken shows that with the gas-oil ratio and water-oil ratio given, it is possible, in principle, to calculate the reservoir saturations and hence the permeabilities and productivity factor. Conversely, knowing the reservoir saturations, the gas-oil ratio, water-oil ratio and the productivity factor can be found.

Pressure Prediction for Oil Reservoirs

By W. A. Bruce
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This paper presents the essentials of a mathematical method of studying the pressure behavior of an oil reservoir as the fluids are withdrawn. Methods are shown whereby the behavior of a reservoir can be used to predict the future relationship between withdrawals and pressure. Examples are given to show the methods of pressure prediction for a circular reservoir containing undersaturated crude, the pressure distribution over a field that has a uniform production rate, the effect of a fault line near a field, a mutual interference of nearby fields, and the perturbing effect of a gas cap. Applications of the analysis to well-spacing problems are shown.

In the analytical development of the method the following assumptions are made: a homogeneous compressible liquid is contained in an infinite, horizontal, uniformly thick and homogenous porous medium. Methods for deviating from these assumptions are indicated in the solution of practical problems. Illustrations of possible methods for predicting pressures in and near oil reservoirs are divided as follows:

1. Pools of undersaturated crude not affected by nearly pools and remote from large impermeable barriers. In this type it will be assumed that the expansion of the oil and water is the driving force. The higher compressibility of the oil, complicated relative permeability effects in the oil-water interface zone, and local change in sands or fluids are assumed to be averaged out, or accounted for, by the two adjustable constants.

2. Pools near enough to each other or near enough to faults or impermeable barriers to cause measurable interference effects. These effects are taken care of by extra terms in the analytical expressions.

3. A pool or pools having a gas cap and saturated crude. Special account will have to be taken of the gas zone and gas coming out of solution.

4. The problem of irregular production (nonuniform well distribution or well production).

In the discussion of Condition 1, the mathematical method is applied to the conditions of a small anticline at Dix, Ill., from which production had been taken for 2½ years. Data and charts show that actual pressures agree with calculated values to the limit of the hypothetical pool assumed.

To apply the mathematical concepts of Condition 2, the Magnolia and Village pools (Smackover lime) have been

studied. Pressure data are calculated and compared with measured values to show that Magnolia production has a considerable effect on the pressure behavior at Village. Condition 3 (pools with gas caps) is also discussed with reference to the Magnolia and Village pools.

The Dix, Illinois, pool is examined as an illustration of Condition 4. The problem of pressure effects resulting from variations in withdrawal rate in various parts of the oil zone is discussed.

Caliper Logging

By C. P. Parsons
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Recently introduced caliper logs for measuring the variations in diameter of open hole in oil wells meet a need long felt in cementing and other field practices. Determinations of variations in the stratigraphic profile are valuable as means of subsurface interpretations by geologists, engineers and drillers.

Before the introduction of caliper logging, well cementing had received considerable development of equipment, methods and materials but there was much guesswork as to the "landing field" for the cement in the bottom of a well. The volumetric capacity of a well to be cemented was always an unknown factor, due to uncertainty regarding the actual size of the hole. A similar uncertainty rendered difficult the planning of a plug-back job in the open hole below the casing. Hole size was known to vary from the size of the bit by amounts depending on nature of the formation.

Calipers eliminate guesswork in connection with hole size by measuring the actual variations in diameter of an open hole. From the information provided, the actual volumetric capacity of the portion of the hole to be cemented can be accurately determined and seats for packers can be properly selected.

A four-armed caliper is one type being used. Run into a well in a closed position, the caliper is allowed to open its arms when it is desired to begin logging. The arms are independent of one another, and as the caliper is pulled upward through the open hole the arms "feel" along the changing profile of the hole. The mechanical movements of the arms are converted into an electrical record, reading directly in inches, at the surface. In one instance of logging a well in Louisiana to determine the amount of cement needed to fill a certain height behind the casing, it had been figured from the size of the bit used to drill the hole that 525 sacks of cement would be needed. According to actual caliper measurements, however, it was determined that the requirement was in fact 1650 sacks. Subsequent tests proved the accuracy of the figure shown by the calipers.

Many caliper logs taken in wells over a wide area show that the differences between bit sizes and actual hole sizes are much greater than would be expected. In some instances the amount of cement calculated required from bit size was only 25 percent of the cement determined by caliper measurement. The differences vary in different wells in proportion to the amount of shale present, but logs taken in all areas show that shales usually wash out considerably beyond the bit size, and that sands stand closer to bit size. Shales drilled with a 9⅞-inch bit have washed out to 22 inches and average around 13 inches.

Among other uses of caliper logging are the following: determination of amount of cement needed when cementing liners in old wells, establishment of volumetric capacity of a portion of a well in which gravel is to be packed, determination of effect of acidizing by taking logs before and after acidizing, determination of length of mechanical core takers needed to reach from the coring device to the wall of a formation, location and study of enlarged portions of a hole in which excessive drill pipe wobbling occurs, examination of effects of a nitro shot in a hole, studying extent of enlargement of a hole when a salt section goes into solution with drilling mud, measurement and location of seats for packers by providing information about hole size, establishment of geological data.

The East Texas Field Pressure Decline

By Resit Kenan
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Various investigators of the East Texas oil field have agreed that the flow of oil in the field has been due to the expansion, upon release of pressure, of the huge body of water in the surrounding Woodbine sand. Investigators have treated the problem of this field on the theory of compressible fluid flow through porous media. This paper analyzes the performance of the field on the same theoretical basis of compressible fluid flow, but offers a solution which is much simpler than previously submitted solutions involving complex mathematics. Special emphasis is placed on late behavior of the field where the pressure decline became accelerated because of increased water production.

On the basis of fundamental assumptions and some experimental data, two final simple expressions are derived for the pressure decline of the field as a function of time and rate of production. These expressions are given at bottom of this column.

Equations (A) and (B) give, respectively, the pressure decline from 1935 to September, 1937, and from September, 1937, to July, 1941. It is Equation (B) that must be used for extrapolating the future pressure decline and for predicting the possible behavior of the reservoir under rates of withdrawal different from those which have been actually in effect up to the present.

With respect to results obtained, the values of average monthly reservoir pressures of the field have been calculated by means of Equations (A) and (B) starting from January, 1936, up to July, 1941, and the data are tabulated and also plotted to show the correlation between the calculated pressure decline and the observed data. A close check between calculated and observed values has been secured except where abrupt changes in pressure occurred. The average percent error is about 0.35 percent, well within the accuracy of measurements by a depth pressure gauge. Large discrepancies between calculated and observed values, however, were found during the latter part of 1939 and beginning of 1940. Unusual increases and unexpected drops of pressure were observed during this period. Pressure increases were most likely due to frequent and comparatively long shutdowns. Rapid pressure drops could be ascribed to either higher water withdrawal rates than the semilogarithmic values or to liberation of gas within some wells in the field which had reached the saturation pressure. The analytical formula, is, of course, not expected to cover such anomalies.

In conclusion, the close agreement between observed and calculated values of pressure decline shows that the theory of compressible fluid flow is applicable to this field, and that the field is under water drive. The results found once more emphasize the applicability of compressible fluid flow theory to water drives. The extreme simplicity of the expression obtained for pressure decline in the East Texas field offers a great advantage in actual computation over previously established ones. If, in the future life of the field, a marked change in the physical system occurs, such as excessive water production, or attainment of the saturation pressure, an empirical constant used to derive the expression can be determined to agree with the new performance of the field without actually altering the underlying theory.

Determination of Well Capacities From Liquid Level Data

By Charles Rodd
Gulf Oil Corporation, Chase, Kansas

With the advent of proration in Kansas, the competition among producers to obtain high allocations for their wells led to adoption of abnormally large pumping equipment with which to obtain high potential capacities. Heavy withdrawals from new wells were costly and posed the threat of early water encroachment. As a result of these conditions the large-scale physical testing of wells in Kansas began to cease in 1938, and the use of bottom-hole pres-

(A).. $P_w = 1625 - 0.00248Q + (13.75 \times 10^{-10} \times Q^2 + 1.146 \times 10^{-3} \times Q)e^{-6.28 \times 10^{-5}t}$

(B).. $P_w = 1615 - 0.00248Q + (15.9375 \times 10^{-10} \times Q^2 + 0.9791 \times 10^{-3} \times Q)e^{-6.28 \times 10^{-5}t}$

where

P_w = Reservoir pressure at any time, pounds per square inch
Q = Rate of production of water, barrels per day
t = Time, days

sure as an index in allocations began in many areas. There were some drawbacks, however, to the use of bottom-hole gauges.

In 1937 experiments were started in Kansas with equipment designed to determine well capacities. The equipment consisted essentially of a pressure chamber to release compressed air or gas into the annulus between the well casing and the tubing in order to set up a wave front which would be reflected by the liquid surface or by fixed objects or reflectors in the well, a diaphragm to detect wave reflections, and equipment to time and record such reflections. Modifications were later introduced.

At about the same time, another device was introduced for determining liquid level depths. This equipment used a cartridge to set up a wave front, a microphone to detect reflections, and an instrument for recording the reflections from tubing collars and liquid levels. Early in 1938 tests established the practicability of using tubing couplings as a basis of measurement and showed the feasibility of testing Kansas Arbuckle dolomite wells by liquid-drawdown methods. Late in 1938 the Kansas Corporation Commission approved the use of both these methods to test some types of wells, and also approved use of bottom-hole pressure gauges. Later, the so-called back pressure method of determining bottom-hole pressure from liquid levels and other data was approved.

A third instrument has been introduced for determining positions of liquid levels. It uses a blasting cap to initiate a wave front, a microphone to pick up reflections from tubing collars and the liquid level, and an oscillograph to transmit reflections to a camera recording device.

The development of liquid-level measuring equipment has given the oil industry a readily available method to measure the liquid drawdown of producing wells. All the instruments can, under proper conditions and within limits, determine the number of tubing couplings between the well head and the liquid level, from which data it is easy to calculate the distance down to the liquid level. In addition to overcoming the physical problem of measuring the liquid drawdown of a well, the use of liquid-level measuring instruments has made available more subsurface information than is easily obtained from the use of bottom-hole pressure gauges.

Water Influx into a Reservoir and Its Application to the Equation of Volumetric Balance

By William Hurst
Research Engineer, Humble Oil & Refining Co., now associated with Core Laboratories, Inc., Dallas, Texas

Evaluation of oil reserves and prediction of pressure behavior with different rates of production are related to the volumetric balance of the fluids entering and leaving the space occupied by the oil and gas originally present in the formation. The volumetric balance equation has been limited in its application to study of oil reservoirs because of insufficient knowledge of the analytics for expressing the water drive on a field as a function of reservoir pressure. Work has been done to overcome this difficulty and to present the relationship in more usable form for reservoir calculations.

If the amount of oil originally in place and the gas space are known, it is relatively simple to determine, by the volumetric equation, the cumulative water influx into a reservoir from adjoining water sands. In many cases, however, it is the oil reserve as well as the water influx that must be determined, and to make this calculation it is necessary to assign a mathematical relationship for the varying water term that is compatible with conditions known to exist in the formation and which affords acceptable accuracy. In most instances, water drive calculations have been of limited application. The method presented is based on the classical diffusivity equation, which was originally applied by the author in developing transient conditions for flow through a sand of a single-phase fluid whose compressibility is either small or whose density varies exponentially with pressure. The derivation is developed by application of D'Arcy's law for flow of fluids through porous media to the equation of continuity. The final form expresses divergence of the flow from an infinitesimal element of sand as proportional to the pressure change per unit of time within the element itself. Analyses included in the paper show the applications of the derived equation to the water drive on fields interpreted as linear, radial and spherical influx of water into oil reservoirs.

It is considered that for the fields studied, the radial flow case for water drive has proved sufficiently accurate for most engineering purposes. Much of the paper deals with this case. However, it is to be remembered that water drive can be effective not only as an influx of water from adjoining sands at the edge of a field but also as a rising table, and in general water drive should not be limited entirely to the radial flow problem.

The physical interpretations of boundary conditions for the case of radial flow is that the oil field is concentric with the adjacent water formation, which is assumed to extend for long distances away from the field. Also, the water sand is considered to be initially saturated with water at the same pressure as the original reservoir pressure, but for increasing times pressure gradients are set up from the edge of the oil reservoir back into the formation to approach the original pressure at some point removed from the field. These gradients are subject to the variations of the field pressure, and this effect is introduced into the mathematics by superimposing a sequence of constant terminal pressure solutions, which essentially reproduces the pressure changes in the field. Thus by means of calculus and application of D'Arcy's law at the periphery of the field, water influx is determined as a function of the reservoir pressure.

It can be definitely said that in all fields where this theory has been applied, the calculated water drive values give results which are sustained by the proportional variation of the comparable term in the volumetric balance equation.

An Engineering Study of the Magnolia Field in Arkansas

By H. F. Winham
Shell Oil Company

Completion of Kerlyn Oil Company's Barnett 1 in May, 1938, led to the opening of the Magnolia field in Arkansas. This well encountered oil at the levels of 7647-7652 and 7664-7669 feet in oolitic lime. Development of the field has been on a 40-acre spacing basis, with step-out wells being sunk south, west and east. Northern limits of the field had been delineated early. By December 31, 1941, 17 operators were in the field with 116 wells.

Magnolia crude averages about 39° API. The gas contains 3.1 gallons of butane and gasoline per 1000 cubic feet. Salt content of the oil ranges between 30 and 400 pounds per 1000 barrels. Originally, reserves of the field were set at 180,000,000 barrels with an estimated recovery of 455 barrels per acre foot. Total reserves have subsequently been considered to be 220,000,000 barrels, only 10 percent of which has been produced. It is considered that the flowing life of the field will be between 10 and 15 years and that some wells should have a life of between 25 and 30 years if not more. Salt water is produced in 16 wells at rates up to 760 barrels daily. A total of about 2400 barrels of water has been run into a surface pit.

In the anticipation that the field would be under an active water drive, development took place on this assumption. Impervious streaks capable of preventing vertical migration in the gas cap and oil column were located by coring. Perforating levels in some wells were chosen so that each permeable streak would be open to produce. The streak was entirely perforated if thin, but if thick, the upper 10 feet was perforated and unperforated pipe set in the impervious streak. Such an arrangement drained the lower levels first. As water encroachment progressed, the former producing levels were plugged off and production taken from higher levels.

Production comes entirely from the Smackover lime, a dolomitic shale, oolitic lime and crystalline lime. The shale is dense, nonporous, and hard and is directly underlain by the oolitic facies. This permeable zone may be encountered as much as 60 feet below the base of the dolomitic shale. Production comes from this zone, the greatest thickness of which is about 340 feet. Below it, the crystalline lime encountered has shown no production potentialities. The structure is based on top of the Smackover lime at 7150 feet lying in an anticlinal fold with a west-east elongation. Characteristics of the productive horizon are the following: porosity, 18.5 percent; permea-

bility, 1500 millidarcies (0 to 16,000); connate water, 20 percent. The field comprises 4494 acres.

The bottom-hole pressure, originally 3465 pounds at 7100 feet, had dropped to 3129 pounds by December, 1941. Cumulative production had reached 18,377,000 barrels, and the recovery, therefore, was equivalent to 54,694 barrels per pound drop. Between February 20, 1941, and July 15, 1941, productivity reached 65,500 barrels per pound pressure drop, a gain probably due to a better adjustment of the reservoir to pressure flowing conditions. The gas-oil ratio, originally 700 cubic feet per barrel, increased in January, 1939, to 1150, and subsequent to that time has varied between 850 and 950, its present value being 889 cubic feet per barrel.

War Reduces Papers and Material Given At Foreign Symposium

Colombia

By O. C. Wheeler
International Petroleum Company
Toronto, Canada

Last year, wildcat drilling was concentrated in the middle Magdalena River Valley, where 4 wells were drilled. On the Barco, 2 were drilled. The only notable well was that of Compania Colombiana de Petroleos El Condor, the Casabe 1, whose reported initial capacity of 480 barrels per day was subsequently reported to be considerably lower. Culimba 1, drilled by Compania Colombia de Petroleo Occidental on the Villamizar concession, was abandoned as dry at a total depth of 2069 feet. Compania de Petroleos del Valle del Magdalena completed a well 4 kilometers northwest of Puerto Wilches. This was Cimitarra 1, in which good but non-commercial indications were found. Shell Oil Company of Colombia's Puerto Parra 1 was abandoned at 10,929 feet. At the end of 1941, 5 wildcats in the valley were drilling.

In the Barco concession, Tres Bocas 2 was abandoned at 1987 feet because of mechanical troubles. South Sardinata 1, drilled to 4717 feet, was abandoned as non-commercial. Sardinata Norte 1 and Tres Bocas 2-A were drilling at the end of 1941.

Peru and Ecuador

By O. B. Hopkins
International Petroleum Company, Ltd., Toronto

Despite war conditions, exploration continued. In the older areas, International Petroleum Company's drilling on the La Brea-Parinas estate included completion of a cretaceous deep test, Well No. 3115, which was a dry hole drilled to 9781 feet. Several other wells added 3 small extensions to the field.

In the newer areas, no developments of importance occurred in the Pirin region last year. In eastern Peru, drilling is confined to operations on the Ganso Azul Company's Agua Caliente structure near Pachitea, the first and only productive field in the east.

So far as known, no change occurred in the status of concessions which were held at the beginning of 1941. The Peruvian government finished its 1000 barrel per day refinery on its Zorritos property. Zorritos produces only about 150 barrels daily. Most of the plant's crude is royalty oil from the Zorritos fields.

In Ecuador, the International Petroleum Company and the Anglo-Saxon Petroleum Company both continued exploration of their study concessions.

Mexico

By Thomas R. Armstrong
Standard Oil Company
(New Jersey), New York City

Total crude production in Mexico during 1941 is estimated as about 41,000,000 barrels, a drop of around 5 percent as compared with 1940 and nearly 11 percent decrease as compared with 1937.

In 1941, there were 28 wells listed as completions, 6 of which were considered abandoned because of no activity for several years. Fourteen producers were completed—3 in Northern District, 3 in Poza Rica and 8 in the Isthmus. At the end of 1941, 6 wells were drilling, 9 were listed as temporarily suspended and 9 wells were located.

Data on refining are not available in detail. However, because of lack of repair in recent years and through troubles with non-technical operators, refining has been beset with difficulties. Last year, although sufficient crude was available, refined gasoline output was probably not over 4,100,000 barrels as compared with an output of 7,235,000 barrels in 1937. Last year, instead of exporting gasoline as in 1937, Mexico had to import about 500,000 barrels, and may have to import about 1,000,000 barrels during 1942 because of dropping output and rising demand.

Russia

By Basil B. Zavoico
Geologist, Chase National Bank, New York City

The oil industry of the Soviet Union left to depend entirely upon itself for equipment and supplies, and even for new workers and technicians to replace those called into the armed forces, did a good and effective job. It could not depend upon new equipment and parts and it could not blame any other industry for the delays so it went to work and dragged old machines out of storage and repaired them. Often such stored unused equipment was but slightly defective awaiting some small parts from factories in Central Russia, plants which were now either in German hands or which were entirely converted for the manufacture of munitions. So the local shops set about overcoming the problem and did a thorough job. Even pipe which could not be brought down to the Caucasus from Central Russia was substituted for by casing reclaimed from old or submarginal wells, this operation having been conducted on large scale to create an ample reserve for the "duration."

Brazil

By J. E. Brantly, *President*
Drilling and Exploration Company
Dallas, Texas

In Brazil, in October, 1939, drilling began on the Atlantic Coast with 3 small rotaries. One was in Alagoas State, the other in Bahia State. Between that date and through 1940, 8 wells were drilled, 2 in Alagoas and 6 in Bahia. Early in 1941, 3 Diesel rigs were added, thus permitting some 15 wells to be drilled during 1941. Two Bahia producers were completed in 1940, near Sao Salvador. Last year, 3 more wells were completed in the same area, and one producer 75 kilometers northwest of Sao Salvador.

The 1942 program calls for development of the areas in which producers have been found, and drilling of several wildcat structures.

Progress in Athabaska Oil Sand Development

By Max W. Ball, *President*
Abasand Oils, Ltd.
Edmonton, Alberta, Canada

In the oil sands of the Athabaska region of Alberta is considered to be more oil than is known in the rest of the world. The sands are estimated to contain a minimum of 100 billion barrels. Of this quantity, however, between one-half to one billion barrels is considered capable of commercial exploitation.

The refinery of Abasand Oils, in the Edmonton area, has been processing the oil sands with encouraging results. Last November, however, about half of the plant was destroyed in a fire. Operation is expected to be resumed next April. The rebuilt plant will be 50 percent larger, with a capacity of 600 tons of sand per day or 540 barrels of crude. The company considers eventually to build a plant with a capacity of 10,000 barrels of oil daily.

Originally, the sands were removed from formation by a planer, a costly operation. It has been found that by blasting the formation, the sands could be loosened successfully at much less cost. A power shovel will be used to convey the loosened material to the plant. Sands on the Abasand property range up to 200 feet thick. The company estimates it has about 300 million barrels of oil on its own concession.

Refining consists of passing the oil through a pipe still and then into a digester with a temperature of 685° F., then into a bubble tower from which bottoms are pumped into shell stills where a temperature of about 800° F. is maintained. A yield of 30 percent of 375° F. end point gasoline has been obtained, with a high octane number. By ultimate yield recycling a yield of up to 45 percent should be secured. Sulphur content of the gasoline is high, but the sulphur has shown very little corrosive action if any.

The Week's News

Franklin Urges Illinois Adopt Conservation Law

Wirt Franklin, Chicago, senior director and director of petroleum production District No. 2, Thursday night urged more than 300 Illinois operators to hasten adoption of state conservation measures.

"Exercise those (state) rights before they are taken away from you—the President under executive order has the power to step in now and take charge of the oil industry and therefore you should enact full and adequate conservation measures," he asserted.

Franklin spoke at a dinner in Mt. Vernon, Illinois, meeting sponsored by the Independent Oil Producers Association of Illinois.

He declared that "if any of you have opposed state conservation in the past now is the time to get behind it as a war measure."

Franklin said it was the independents —not the majors—who brought about the first state conservation laws in Oklahoma.

"Under the old system in Oklahoma I had enough production to run 50,000 barrels a day but I couldn't run enough to grease a shotgun. But after conservation laws providing for equitable and ratable taking from a common source were approved, I produced my fair share of oil."

In pointing out the necessity for state conservation in Illinois, he said the state in 1941 produced an amount equivalent to 28 percent of its estimated reserves as of January 1, 1942. In speaking of objections raised by some oil men to the federal petroleum program he asserted that "when the rank and file of the industry realize the necessity of these orders (M-68; P-98) for the progress of the war program, dissatisfaction will be borne without complaint, as it was in the last war."

Complaints that Illinois was unjustly hindered by federal regulations were unfounded, he added.

"Illinois has about 3 percent of national reserves but under the recommended quota for February it is producing about 9.1 percent of the market. Illinois didn't get hurt as badly as Oklahoma."

"All you've been asked to do is to defer full development of oil fields so we will have enough steel to equip boys who are being sent overseas. Is that much of a sacrifice compared with what boys being drafted are being compelled to make?"

Franklin said that 40-acre spacing also enabled geologists to define and analyze a field so that when "we have to step up production we can go back to that field where we know there is oil and complete its development with a minimum amount of materials."

Franklin asserted that a provision in CF 6-68 requiring the signature of the director of the nearest petroleum coordinator's office for all material requests was as much a "headache" to his office as it was to operators. A recommendation has been made to the War Production Board that the requirement be eliminated.

API 1942 Mid-Year Meeting Cancelled

The Twelfth Mid-Year Meeting of the American Petroleum Institute, scheduled for May 25 to 28 at Oklahoma City, has been cancelled, W. R. Boyd, Jr., API president, announced in New York, February 11.

"This action has been taken by the institute's executive committee upon my recommendation," Boyd said, "because so many of the members of the institute, and especially of its working committees, who normally attend mid-year meetings, are actively engaged in war work."

Other recommendations made to the War Production Board, according to Franklin, include:

That the first well drilled subsequent to December 23 in a partially developed field established the drilling pattern for the field if it is 330 feet from property lines, that each succeeding well be within 100 feet of the corresponding location in its 40-acre unit or within 150 feet of the center of the 40 acres. That on irregular tracts the length cannot be more than twice the width, and that wells on such tracts must be at least 999 feet apart.

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OIL IS AMMUNITION ★ KEEP 'EM PRODUCING

Oil Equipment Prices To Be Frozen Shortly

Oil field equipment prices, including rental tools and services, probably will be frozen at the October 1, 1941, level in the near future.

Nearly 500 oil field equipment and machinery men from all sections of the United States attended a meeting in Dallas February 11 to discuss with officials of the Office of Price Administration from Washington the price structure of their industry. Copies of a tentative draft of the proposed schedule for oil field equipment prices was distributed at the meeting, on which suggestions, critcism and questions were invited.

The tentative draft provided that (1) the maximum price for any "regular" and for any "specially designed" oil field tool, with the exception of pipe and casing, should be the net price in effect October 1, 1941; (2) that the maximum rental for any oil field tool was to be the price existing on the last executed lease prior to October 1, 1941; and (3) that the maximum rate for any service performed with oil field tools was to be that used upon the last occasion the service was performed prior to October 1, or the rate which would have been charged on October 1, 1941.

As explained at the outset of the meeting by Carroll L. Christenson, assistant administrator of the machinery division of OPA, the meeting was an "exploratory" executive session, to get the direct views of men engaged in this industry before setting price schedules.

Assisting Christenson were U. R. Laves, of Washington, chief of the oil field equipment unit of OPA's machinery section; L. Petschaft, Washington, member of the OPA legal staff; Edgar Higgins, field liaison officer of the machinery section; J. A. Harris, who came with them from Washington to assume the post of field representative in the Dallas regional office of OPA. The regional staff of OPA, including Max L. McCullough of Dallas, regional director, and William H. Brooks, region executive officer, also participated.

At the conclusion of the closed general session, Christenson issued a statement pointing out that "production of equipment for the oil industry is vital to the Victory program."

After noon-hour study of the tentative price schedule submitted at the morning session, the oil machinery and equipment men submitted questions at the afternoon session to Christenson and Petschaft for answers regarding certain points of the program and interpretations of the price control law.

After the general session adjourned, a smaller group meeting was held for dealers in used equipment.

Another smaller group, representing different sections of the industry, met with Christenson and his associates to go over specific points in the proposed price schedule. Among those participating in this smaller group meeting were Gordon Richmond, Houston; W. M. Bovard, Tulsa; E. L. Decker, Long Beach, Calif.; Frank Champion, Los Angeles; Lawrence Bash, Los Angeles;

Left to right: John A. Harris, who will be field representative in the Dallas area for the equipment section of the machinery division of the Office of Price Administrator; U. R. (Bill) Laves of Washington, chief of the oil field equipment unit of the machinery division; C. L. Christenson of Washington, D. C., chief of the construction and extraction section of the machinery division of the OPA and William H. Brooks of Dallas, executive officer of the OPA for the Southwestern region, with headquarters in the Fidelity Building, Dallas.

Earl Miller, Oklahoma City; H. W. Cardwell, Wichita, Kans.; A. W. McKinney, Toledo, Ohio; Fred Spang, Pittsburgh, Pa.; Thomas Northrup, Parkersburg, W. Va.; W. D. Wilson, Houston; W. L. Childs, Houston; Tom Hunt, Houston; Frank Hinderliter, Houston; Walter Trout, Lufkin, Texas; Jay Walker, Tulsa; M. E. Montrose, Los Angeles; E. Lorehn, Houston; M. O. Johnston, Los Angeles; George O'Leary, Houston.

Houston Clarification Clinic on WPB Orders

Oil operators and equipment firms are to be given an opportunity to seek clarification of such government regulations as M-68, P-98, P-83, P-90 and other orders, at a meeting to be held at the Lamar Hotel at 12 o'clock noon Thursday, February 19. Tickets cost $1.00 and should be obtained in advance from the Houston Chamber of Commerce.

A group of WPB officials, headed by Mason Manghum, head of the industrial contact and educational unit, are coming from Washington. Manghum probably will make a short general speech at the luncheon, after which the meeting will break up into various industrial groups, among which will be at least one devoted to petroleum.

Among representatives of WPE accompanying Manghum to Houston will be: James E. Hughes, chief priorities specialist for petroleum; Carl Eicker, chief consultant of production requirements plan (P-90); H. F. McCook, chief priorities specialist for materials branch; R. C. Duncan, chief consultant of warehouse and distributors orders; and J. S. White, of the iron and steel warehousing branches. Several others from WPB will be in the party, but the above group probably constitute all those having something to do with the oil industry.

Hunter and Brown Head Depletion Committee

Formation of a general depletion committee for the industry was announced this week by the Mid-Continent Oil and Gas Association and the Independent Petroleum Association.

J. C. Hunter, president of the Mid-Continent group and Russell B. Brown of Washington were named as co-chairmen.

All of the producers organizations of the industry have been invited to join and participate in the work of the committee.

Views expressed by Secretary of the Treasury Henry Morgenthau regarding the depletion allowance of the present revenue laws, voiced in a recent address in Cleveland, were challenged last week by the Independent Petroleum Association.

In his address, the Secretary characterized the depletion allowance as a "loophole" for tax avoidance "against which the Treasury has struggled for years without avail," and under which an oil company may recover many times the cost of the wells which it is operating, with a loss to the Treasury estimated at not less than $80,000,000 a year.

In a letter to Morgenthau, Russell B. Brown, general counsel of IPA, pointed out that he had presented nothing regarding the situation which had not long been known and which had not received careful consideration in Congress.

Associations

War Theme Features Southwest API Program

The spring meeting of the Southwestern District, Division of Production, American Petroleum Institute, will be held at Dallas, Texas, February 26-27 with "All Out Cooperation to Win the War" as the theme.

With meetings to be held in the Adolphus Hotel, E. P. Hayes, The Texas Company, Houston, and D. V. Carter, Magnolia Petroleum Company, Dallas, will preside at the first session at 10 a.m. February 26.

Following reports by district chapter chairmen, P. L. Lotz, Socony Paint Products Company, will present a paper on "Paint Programs to Prevent Corrosion and Evaporation Losses." C. P. Parsons, Halliburton Oil Well Cementing Company, Duncan, Oklahoma, will give a paper on "Caliper Well Surveys and Their Value."

B. C. Craft, Louisiana State University, and H. B. Hill, Bureau of Mines, Dallas, will preside at the afternoon session Thursday, when the program will include "Subsurface Pressure Regulation of High-Pressure Condensate Wells," by John O. Farmer, Otis Pressure Control, Inc., Dallas; "Back-Pressure Tests on Gas Condensate Wells," by A. L. Vitter, Louisiana Department of Minerals, Baton Rouge, and "Multiple-Zone Completions," by E. O. Bennett, Continental Oil Company, Ponca City.

J. H. Rambin, The Texas Company, New Orleans, and W. S. Morris, East Texas Engineering Association, Kilgore, will preside at the session opening 10 a.m. Friday, when papers heard will include "Application and Value of Draw-Down Tests on Oil Wells," by J. Daviss Collett, Jr., Houston, and "Improvement in the Treatment of Crude Oil Water Emulsions," by R. C. Buchan, Humble Oil & Refining Company, Houston.

R. O. Garrett, Arkansas Fuel Oil Company, Shreveport, and F. E. Heath, Sun Oil Company, Dallas, preside at the afternoon session, which will be devoted to subjects and speakers on topics relating to the industry's efforts to cooperate with the government in the war emergency. D. R. Knowlton, associate director of production of the Oil Coordinator's Office, will address the meeting. Other speakers from the district coordinator's office and from the industry will also address the meeting.

Presiding officers, authors and discussers will have a breakfast meeting Friday morning at 8 o'clock.

Entertainment will include an informal gathering at the Dallas Petroleum Club, sponsored by Dallas Wildcats, Thursday from 5:30 to 7 p.m., and a "Victory Dinner" Friday at 7 p.m., at the Adolphus Hotel. Speaker for the dinner is to be announced. Ladies are to be invited to both entertainment features.

Girdler to Speak Before Pacific Coast API

Tom M. Girdler, board chairman of Consolidated Aircraft Corporation, and Republic Steel Corporation, will be guest speaker at the annual spring meeting, Division of Production, Pacific Coast District, American Petroleum Institute, March 10, at the Biltmore Hotel. Girdler will address the evening dinner session which will follow two technical sessions slated for morning and afternoon.

At the morning session, E. C. Babson, chairman of the California Topical Committee on Production Practice will preside and three papers will be presented: "Facts About the Flow of Oil-Water Mixtures Through Surface Equipment," by William Woelflin, Petroleum Rectifying Company of California, Long Beach; "Observation and Application of Sub-Surface Temperatures in Oil and Gas Wells," by C. R. Dale, Technical Oil Tool Corporation, Los Angeles; and "A Practical Review of the Behavior of Oil and Gas Pools," by C. V. Millikan, Amerada Petroleum Corporation, Tulsa.

Earnest K. Parks, consulting production engineer, will preside at the afternoon session at which a symposium on "California Production of Crude Oil, Gas and Natural Gasoline for War Effort" will be presented by L. L. Aubert, Bankline Oil Company; A. C. Ruble, Union Oil Company of California; P. S. Magruder, General Petroleum Corporation, and John F. Dodge, University of Southern California. These speakers will also direct an open discussion of the topic.

Bruce H. Robinson, General Petroleum Corporation, will preside at the dinner meeting. Following the dinner the annual election of officers will be held.

Industry Concentrates on Supplying Heavy Fuel Oil

Latest weekly statistics of the industry, compiled by the American Petroleum Institute and by the Bureau of Mines reflected the setting of a new all-time record in crude oil production, slightly increased and relatively large refinery runs, a somewhat larger than normal accumulation of gasoline in storage, a seasonal withdrawal of light fuel oil from storage, continued reduction of the stocks of heavy fuel oil, and continued building up of crude-oil stocks.

The new record in crude production is 4,336,900 barrels daily, the average reported by the API for the week ended February 7, that figure having been 50 barrels above previous peak output in the week of November 22, 1941. The high rate resulted from the fact Texas fields were shut in only 1 day, against 3 the previous week, and temporarily, production was about 235,000 barrels above indicated daily average current demand, as forecast by the Bureau of Mines for February. The new peak of production was 20 percent above output in the corresponding week a year ago.

Crude runs to stills were stepped 5000 barrels to 3,853,000 barrels daily in the week of February 7, at which level the refineries utilized 82.3 percent of their rated capacity throughput. The new rate was 237,000 barrels (6.6 percent) above that in the corresponding week last year. Runs were maintained generally at about the same rates as in the previous week except on the East Coast, where they were reduced 35,000 barrels, and in California, where they were increased 50,000. At the new rate of 583,000 barrels daily, East Coast plants operated at 81.7 percent of capacity.

While throughput of crude was increased slightly, smaller cuts of gasoline were taken, as the industry complied with orders from the petroleum coordinator's office to concentrate more on supplying residual fuel oils for East Coast war industries and less on shipping and producing gasoline. The national production of gasoline dropped to 12,895,000 barrels (1,842,000 daily) for the week ended February 7, from 13,201,000 (1,886,000 daily) in the preceding 7 days, a decrease of 44,000 in the daily average. Noteworthy was the curtailment of gasoline production in California by about 15,000 barrels daily, in the face of the stepping up of the refinery throughput of crude by 50,000 barrels daily, as larger cuts of fuel oil apparently were taken in supplying ships in the Pacific and industries on the West Coast. Similarly, East Coast plants produced 15,000 barrels a day less of gasoline, although that decrease also reflected cutting back of plant throughput of crude, as given above. On the Texas Gulf Coast, gasoline production was cut 5000 barrels daily, with runs to stills virtually unchanged, and Inland Texas plants produced 4000 barrels a day less of gasoline, with refinery runs up 11,000 daily. Oklahoma - Kansas plants also turned out about 4000 barrels a day less of gasoline, with crude runs practically unchanged, and less gasoline was produced also in the North Louisiana-Arkansas and Rocky Mountain districts. The only districts where gasoline production was increased were the Appalachian, Middle Western, and Louisiana Gulf Coast areas.

Despite curtailment of production of gasoline, output remained large enough to permit continued building up of storage in most districts, the only withdrawals having been those on the East Coast (193,000 barrels) and in California (49,000 barrels), where production had been most sharply reduced. Conversely, the Texas Gulf Coast reflected the diversion of shipping space to heavy fuel oils by showing an unusually large increase of 1,205,000 barrels in gasoline stocks. In districts other than those just mentioned, additions to storage were about normal, with the result that the nation as a whole registered the 2,414,000 barrel increase for the week. The 100,224,000 barrels on hand February 7 was nearly 8,000,000 barrels (8.3 percent) more than the 92,511,000 barrels in storage a year previously, and was within about 2,500,000 barrels of the all-time peak storage of mid-April, 1940.

In declining 636,000 barrels during the week ended February 7, stocks of gas oil and distillate fuel in the United States fluctuated about the same as in the corresponding week last year. At the new level of 40,038,000 barrels, they were 2,815,000 barrels (7.6 percent) larger than a year previously. The week's decrease was accounted for principally by the East Coast, where 644,000 barrels came from storage. The Middle West took out 82,000 barrels, the Texas Gulf Coast 185,000, the Rocky Mountain district 31,000, and Inland Texas 1000. Stocks were increased a little in the Oklahoma - Kansas, Appalachian, Coastal Louisiana, and North Louisiana-Arkansas districts.

Residual fuel oil stocks were reduced 330,000 barrels during the week ended February 7, despite indicated larger production concurrently with smaller production of gasoline; and the withdrawals occurred principally on the East Coast and in California, where the most pronounced stepping up of production apparently occurred. East Coast stocks of residual fuel oil were reduced 216,000 barrels, and California inventories were cut 128,000. There were reductions also in the Oklahoma-Kansas, Inland Texas, Coastal Texas, Coastal Louisiana, and Rocky Mountain districts, but they were offset by additions to storage in the Appalachian and Indiana - Illinois - Kentucky and North Louisiana-Arkansas districts.

All the above refinery statistics are based on reports of the American Petroleum Institute.

Stocks of crude oil in the United States were increased sharply to the highest level since last summer in expanding 2,576,000 barrels to 250,740,000 barrels in the week ended January 31, the weekly report of the Bureau of Mines for the period showed. The new total was, however, 10,000,000 barrels (3.7 percent) under that for a year previously. The large addition of the week was due largely to higher-than-normal production of crude in Texas, under the current proration order, which called for only 1 day of shutdowns for fields of the state, whereas there are usually 2 shutdown days out of every 7.

Crude Oil Production in the United States Off Sharply

(Estimates compiled by The Oil Weekly. All figures indicate daily averages, in barrels.)

STATE OR DISTRICT	[1]OPC Allocation In February	PRODUCTION IN WEEK ENDED Feb. 7	Feb. 14
Arkansas	[2]74,500	74,400	74,500
California	[3]632,300	640,700	661,700
Long Beach		38,200	38,000
Midway-Sunset		54,700	57,800
Kettleman Hills		35,100	32,300
Wilmington		84,200	84,200
Rest of State		428,500	449,400
Colorado	6,500	6,500	6,500
Illinois	371,800	371,150	339,750
Salem		58,500	46,250
Louden		56,000	55,300
Other New Pools		236,700	226,350
Old Pools		19,950	11,850
Indiana	17,200	20,800	20,900
Kansas	[2]251,700	246,700	249,900
Kentucky	12,500	11,700	10,300
Louisiana	[4]335,000	365,350	357,750
North Louisiana		81,150	80,850
South Louisiana		284,200	276,900
Michigan	[2]47,000	51,750	53,250
Mississippi	57,400	83,000	87,750
Missouri		125	125
Montana	20,400	20,850	20,800
Nebraska	5,200	5,250	4,700
New Mexico	[2]119,300	121,400	121,400
New York	14,700	13,600	12,500
Ohio	9,000	9,100	7,800
Oklahoma	[2]395,300	408,200	393,000
Oklahoma City		83,450	69,600
Seminole Area		105,550	105,600
Rest of State		219,200	217,800
Pennsylvania	48,000	53,300	47,000
Tennessee		30	30
Texas	[5]1,596,000	1,732,650	1,504,250
Upper Gulf Coast		344,550	296,950
East Texas Field		439,250	368,400
Rest of Eastern Texas		96,050	89,900
Lower Gulf Coast		145,150	123,050
Southwest Texas		88,050	74,900
South Central Texas		21,700	22,050
West Texas		353,850	299,900
North Texas		147,950	146,000
Panhandle		96,100	83,100
Utah		15	15
West Virginia	10,000	10,300	8,700
Wyoming	78,000	88,500	88,900
Total United States	4,101,800	4,335,370	4,071,520

[1] Production rate recommended for state by Office of Petroleum Coordinator, on basis of Bureau of Mines forecast of daily average requirements domestic crude during month.

[2] OPC allocation adopted by state conservation authorities as allowable production.

[3] OPC allocation also represents allowable production, the state quota being distributed among fields by Conservation Committee of California Oil Producers, acting under OPC.

[4] Louisiana Department of Conservation set allowable at 344,955 barrels daily for February.

[5] Under Texas Railroad Commission proration order for February, actual production in Texas was expected to average 1,543,739 barrels daily at beginning of month, allowing for usual under production of 3½ percent below net allowable, which was figured at 1,606,389 barrels daily as of February 1. However, allowable normally increases as new wells are completed, and actual daily average production for month may be expected to be slightly greater than average as calculated for February 1. Under February order, most Texas fields were ordered shut down February 4, 8, 14, 15, 21, 22, and 28.

Production Drops as Texas And Illinois Cut Output

United States crude oil production dropped sharply in the week ended February 14, having averaged 4,071,520 barrels daily. That was 263,850 barrels less than the daily average output in the previous week and 30,280 less than the estimated demand for domestic crude in February, as forecast by the Bureau of Mines.

The decrease of the week reflected the sharp cut-back of Texas production,

which averaged 1,504,250 barrels daily, against 1,732,650 the week before, as fields were shut in 2 days compared with only 1 the previous week.

Illinois also was off sharply, to 339,750 barrels daily from 371,150 in the preceding week, when output practically coincided with demand. Oklahoma was down to 393,000 from 408,200 the week before, under stricter allowables, and Louisiana declined to 357,750 daily from 365,350.

On the other hand, California was up substantially to 661,700 barrels a day from 640,700 the week before, and Kansas was up to 249,900 from 246,700, while Mississippi set a new record of 87,750 barrels daily, which compared with 83,000 barrels in the previous week.

Arkansas, Mississippi, and New Mexico were about unchanged, as were the Rocky Mountain states.

Markets Reflect Scarcity Of Transportation for Oil

Markets last week reflected the fast-changing war developments affecting the industry. Prices of natural gasoline continued to decline, apparently because of lower seasonal requirements with approach of spring and because of the pronounced slowing down in the Southwest of demand for ordinary gasoline, into which natural is blended when shipments are made.

Prices of refined gasoline similarly reflect the sluggish markets in the Southwest, which appear to be based principally on the scarcity of tanker tonnage and scarcity of tank cars for movement to the East Coast consuming areas.

The dearth of ocean-going tank ships for coastwise movement of gasoline is said to be due only in negligible degree to cutting down of shipments to provide additional ship space for hauling heavy fuel oil, despite the fact that the industry is cooperating with the Office of the Petroleum Coordinator in efforts to provide adequate residual fuel oil for East Coast industries, as only a relatively few tankers have the necessary coil equipment for handling the heavy fuels. The slower movement of gasoline is attributed, therefore, principally to sinkings of 8 tankers (up to the middle of last week) on the East Coast and the resultant more-protected but slower movement of other tankers and also to the diversion of tank ships from the regular coastwise routes to military service on the Pacific and elsewhere.

In some districts of the Southwest, particularly the Texas Gulf Coast, refiners complain that they already have filled gasoline storage practically to capacity and that they do not have markets, because of lack of tankers and tank cars, with the result that prices have weakened and would be cut even lower if sales could be made.

On the other hand, markets for all products in the East Coast consuming region are tight, with supplies scarce, for the same reasons that they are sluggish in the producing districts of the Southwest. Especially acute is the East Coast heavy fuel oil situation, with the early future expected to bring rationing of that product, in order to assure adequate supplies for war industries and the military. Handling of heavy fuel oil apparently will be the first responsibility of a subcommittee of the OPC set up for the "sale, exchange, and loan of petroleum" products in the East Coast district.

At the middle of the past week, refiners were revising kerosene prices downward into line with the schedule promulgated by the Office of Price Administration.

The price control agency effective November 9 authorized price increases for asphalt and asphalt products. Maximum prices for roofing flux east of the Rocky Mountains could be raised, under the order, about 75 cents a ton over contract prices of January 1, 1941, and a similar increase of $1 or more was authorized west of the Rockies.

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, which are estimates on Bureau of Mines' basis, except those on crude stocks, which are from Bureau of Mines weekly reports.

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1939:						
February 18	3,324,300	[6]3,125,000	271,252,000	83,075,000	23,747,000	111,349,000
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[2]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[2]3,809,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[1]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	[2]116,237,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[3]229,127,000	72,122,000	39,358,000	115,060,000
October 28	3,498,500	3,520,000	230,453,000	72,660,000	[2]39,562,000	114,786,000
1940:						
January 6	3,584,450	[6]3,370,000	238,581,000	82,002,000	32,183,000	105,247,000
February 10	3,688,100	3,460,000	239,510,000	91,649,000	26,007,000	[6]102,344,000
March 16	[2]3,890,050	3,500,000	246,762,000	100,616,000	24,075,000	103,358,000
April 6	3,745,000	3,455,000	251,897,000	101,690,000	[6]23,551,000	105,099,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
June 22	3,846,450	[2]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
September 14	3,647,400	3,580,000	262,475,000	83,300,000	46,648,000	[2]109,135,000
October 19	3,667,550	3,525,000	262,098,000	81,656,000	[2]49,051,000	108,141,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	[6]3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
1941:						
January 4	3,367,200	3,600,000	260,643,000	85,053,000	42,403,000	[2]102,448,000
January 11	[6]3,364,450	3,565,000	259,342,000	86,328,000	41,094,000	102,281,000
January 18	3,611,900	[6]3,490,000	259,934,000	87,351,000	39,920,000	101,213,000
March 29	3,746,550	3,625,000	[2]266,187,000	[2]99,727,000	29,949,000	96,152,000
April 12	3,603,650	3,630,000	265,160,000	98,654,000	[6]28,381,000	95,471,000
July 5	3,658,200	3,745,000	258,070,000	90,064,000	36,925,000	[6]92,635,000
October 4	3,860,750	4,015,000	246,144,000	[6]80,870,000	49,553,000	96,016,000
October 18	4,110,550	[4]4,120,000	243,605,000	82,584,000	52,403,000	95,800,000
November 15	4,086,850	4,010,000	[6]240,399,000	83,412,000	[2]54,983,000	95,993,000
1942:						
January 3	4,038,000	3,961,000	244,440,000	92,987,000	49,357,000	95,857,000
January 10	4,229,150	3,891,000	244,364,000	94,204,000	47,250,000	94,885,000
January 17	4,045,600	3,723,000	246,267,000	95,617,000	43,984,000	92,703,000
January 24	4,311,300	3,885,000	[9]248,164,000	96,363,000	41,863,000	92,079,000
January 31	3,871,350	3,848,000	250,740,000	97,810,000	40,674,000	91,189,000
February 7, 1942	**[4]4,336,900**	**3,853,000**	.....	**100,224,000**	**40,038,000**	**90,859,000**
February 7, 1941	3,617,650	3,616,000	[4]260,250,000	92,511,000	37,223,000	97,782,000
Amount Change:						
From Week Ago	+465,550	+5,000	[8]+2,576,000	+2,414,000	—636,000	—330,000
From Year Ago	+719,250	+237,000	—9,510,000	+7,713,000	+2,815,000	—6,923,000
Percent Change From Year Ago	+19.9	+6.6	—3.7	+8.3	+7.6	—7.1

[1] All time peak. [2] Peak for year. [3] Lowest since April, 1922. [4] Stocks, February 8, 1941.
[5] Lowest since October, 1922, due to shut down of six Mid-Continent states. [6] Lowest for year.
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California.
[8] Latest weekly change. [9] Revised.

Pipe Line News

Phillips Plans West Texas Gasoline Line

Phillips Petroleum Company is acquiring right-of-way for a proposed natural gasoline pipe line to extend from its Texas Panhandle refinery near Borger to connect with its gasoline plants in West Texas and Southeastern New Mexico. Formal application has been submitted to the War Production Board for approval of the project, which will involve about 250 miles of 8-inch trunk line in reaching the north portion of the Permian basin, with 6-inch extensions to connect with the company's gasoline plants in Lea County, New Mexico, and Ector and Crane Counties, Texas. The company will also purchase the output of other plants to assure near-capacity line.

Pipe Line From Texas To California Urged

A proposal that a 900-mile 12-inch pipe line be constructed from the Permian Basin fields of New Mexico-West Texas to Los Angeles and San Diego, last week drew the support of Governor John E. Miles of New Mexico, who authorized a Santa Fe attorney to investigate the tentative plan. Such a line would cost approximately $15,000,000.

United's South Louisiana-Alabama Gas Line Finished

United Gas Pipe Line Company's 200-mile line from the Lirette and Gibson gas fields in South Louisiana to Mobile, Alabama, was completed last week. There are 80 miles of lateral line. The main line ranges in size from 12 to 16 inches and has a daily capacity of 800 million cubic feet.

The line includes what is said to be the world's longest underwater line, a total of 25.59 miles of 14-inch line under Lake Pontchartrain.

U. S. Field Operations

Illinois

Richland Wildcat Makes 900 Barrels

Richland County wildcat initials 900 barrels; one White County wildcat testing, another drilling plug; Wayne County wildcat shows for small producer; new field opened in Edwards County.

Richland County: Bonpas Development Co.'s Wood 2, W½ SW SE 21-2n-14w, 1½ miles northeast of Parkersburg field, flowed 900 bbls in 24 hours after acid in McClosky at 3090-96 ft, to open new field.

Pure Oil Co.'s Chapman 1, NW NW 13-4n-9e, outpost to Dundas Consolidated field, shut in because of heavy gas in McClosky and may be completed as gas well.

White County: Carter Oil Co.'s Marlin 1, SW NW 35-6s-9e, 1½ miles south of Storms field, swabbing 3½ bbls of oil and 3½ bbls of water hourly after 20 casing perforations in lower McClosky at 3019-23 ft; previously bailed barrel of oil an hour after perforations and acid in upper McClosky at 3003-07 ft; Bethel show at 2797-2810 ft also may be tested.

Minerva Oil Co.'s Ramsey 1, C N½ SW NE 33-6s-10e, 3½ mi southeast of Storms field, drilling plug to test Aux Vases saturation at 2904-14 ft which indicated an excellent producer on drill-stem test.

Wayne County: Bell Brothers' Jones 1, C W½ NE SE 24-1n-5e, three miles west of Johnsonville field, swabbed half barrel of oil an hour, preparing to acidize in McClosky at 3107-11 ft.

Edwards County: Ike Taylor's Ogle 1, C S½ SE SW 30-1s-11e, 1½ miles north of Albion, testing Aux Vases at 3055-74 ft; oil entered hole at rate of 200 ft an hour after plug was drilled. Nearest production is Albion field, two miles to the south.

Hamilton County: Dave Ring's Johnson 1, NW SE 21-6s-5e, ¾ mile west of Rural Hill field, to drill plug to Aux Vases at 3191-99 ft which indicated good well on drill-stem test.

Perry County: Harsh's Newborn 1, SE SE NW 22-4s-1w, 1½ miles east and 1½ miles north of Tamaroa, will test Cypress saturation at 1127-50 ft.

COMPLETIONS

Bond County: Wildcat—Chas. Moriz et al's Bone-White 1, ne sw ne 17-5n-4w, abnd 726 ft.

Clay County—B. F. Williams' Nolan 2, n½ se nw 10-2n-7e, McCl 3059-3065 ft, td 3079 ft, 456 ft. W. C. McBride's Palmer 1, nw ne se 34-4n-7e, abnd 2660 ft.

Cole County—Carter's Hamilton 1, cep ne nw 11-13n-7e, abnd 1873 ft.

Cumberland County: Wildcat—Joe Hassett's Travis 1, se se sw 21-9n-10e, abnd 509 ft.

Edwards County—Nelson Development Co.'s Birhaus 1, nw sw sw 32-2n-14w, McCl 3095-3101 ft, td 3111 ft, 350 bbls.

Fayette County—Magnolia's Buzzard Bros. 11, se se sw ne 29-8n-3e, td 1194 ft, salt water disposal.

Franklin County—Shell's C. W. F. Coal Co. 10, nw nw se 24-6s-2e, Tar Spgs 2115-2134 ft, td 2134 ft, 80 bbls. O'Meara Bros.' Simpkins 1, nw se ne 2-5n-2e, abnd 2937 ft.

Gallatin County — Oil Management, Inc.'s Goebel 1, sw nw se 19-8s-10e, abnd 2903 ft.

Hamilton County—Gulf's Alford Lockwood 1, se se se 15-6s-5e, Aux V 3118-57 ft, L. O.Hara 3206-3211 ft, td 3225 ft, 287 bbls. Whisenant & Trenchard's Lockwood 7, ne se ne 23-6s-5e, abnd 3121 ft. Cameron Oil Co.'s Lockwood B-1, nw sw nw 24-6s-5e, Aux V 3094-3112 ft, td 3126 ft, 160 bbls. Shell's Crabtree B-2, se nw nw 24-6s-5e, Aux V 3095-97, 3099-3107 ft, 3109-25, L. O'H 3180-86, McCl 3257-62 ft, td 3349 ft, 583 bbls; Daily 9, se ne se 12-6s-6e, Aux V 3019-31 ft, 3035-42 ft, td 3165 ft, 16 bbls oil. Muliahy et al's Schribner 1, s½ ne se 28-3s-5e, abnd 3382 ft. Carl Robinson's McCollough 1, se ne ne 24-3s-7e, A. V. 3250-3272 ft td 3273 ft, 144 bbls. Ohio's Whitmore 2, nw se se 13-6s-5e, Aux V 3128-3152 ft, td 3152 ft, 412 bbls. Texas Co.'s Knight 1, c nw nw ne 13-6s-5e, Aux V 3086-3116 ft, td 3349 ft, 438 bbls.

Jasper County—Lain O&G's Burton 2, e½ nw sw 5-5n-14w, McCl 2826-2842 ft, td 2864 ft, 250 bbls.

Jefferson County—W. C. McBride's Inc.'s McMillian 3, nw nw sw 36-2s-1e, td 1217 ft, salt water disposal. Kennedy & Gilbert's Dunavon 1, sw nw se 1-4s-2e, abnd 2904 ft. T. M. Conray's Carson Est. 1, n½ ne se 6-4s-2e, abnd 2833 ft.

Macoupin County: Wildcat—R. G. Whipple's Rhodes 1, nw se sw 35-9n-8w, Potts 412-21 ft, td 421 ft, 10 bbls.

Marion County—A. L. Peterson et al's Timberlake 1, c se sw 19-1n-1e, Petro 720-774 ft, td 774 ft, 10 bbls. A. L. Peterson's Timmons 1, nec sw se sw 19-1n-1e, Petro 720-780 ft, td 780 ft, 10 bbls. National Pet Co.'s Lindley 1, e½ ne sw 22-2n-4e, abnd 2764 ft.

Richland County: Wildcat—Seaboard Oil's Stebes 1, sw ne 3-3n-14w, abnd 3126 ft.

Wabash County—Continental's LaJier 3, nw sw se 17-2s-13w, abnd 2865 ft. Richard Young's Schafer 1, se ne se 28-1n-12w, abnd 1720 ft. Dean & Morton's Whiteside 1, se ne nw 17-1n-11w, abnd 1610 ft.

Washington County: Wildcats—H. Fotiades' Long et al 1, sw se nw 35-2s-1w, abnd 1806 ft. J. A. Brouk et al's Kozuszek 1, ne se se 20-3s-2w, abnd 1362 ft.

Wayne County—Texas Co.'s Fuhrer 1, w½ ne se 28-1s-6e, A. Vases 3019-3050 ft, McCl 3145-53 & 3159-64 ft, L. O'Hara 3091-95 ft, td 3245 ft, 250 bbls. Gulf's Rosa "B" 6, e½ sw sw 34-1n-6e, A. V. 3006-3026 ft, td 3026 ft, 97 bbls. Wiser Oil Co.'s Dickey "B" 8, e½ se se 34-1n-6e, Aux Vases 3025-3042 ft, td 3046 ft, 110 bbls. Pure's Carson 3, w½ se ne 11-1n-7e, Aux Vases sd 2950-2982 ft, td 3090 ft, 98 bbls. G. N. Hawley et al's Walthes 1, nw sw se 6-1s-5w, abnd 1002 ft. L&W Drlg. Co.'s Crumbacked 1, s½ ne se 9-1s-5e, abnd 3154 ft.

White County—Pure & Carter's Henderson C-75 1, ne sw ne 18-6s-9e, Pt. Crk. 2745-2768 ft, td 2800 ft, 751 bbls. Cherry & Kidd's Gray M-2, nw ne sw 30-3s-8e, Aux V. 3199-3227 ft, 350 bbls; Gray M-7, ne sw nw 30-3s-8e, Aux V 3219-3239 ft, td 3239 ft, 150 bbls. Texas Co.'s Poorman 19, sw se nw 30-3s-8e, Aux V 3193-3208 ft, 3205-3224 ft, td 3225 ft, 75 bbls. Superior's Fitton 30, ne ne ne 28-4s-14w, Aux V 2835-49 ft, td 2863 ft, 67 bbls. Sun's Vixenstine 2, ne nw se 7-4s-10e, McCl 3206-3223 ft, td 3223 ft, 320 bbls. R. S. Hayes et al's Vaughn 1, ne ne ne 21-3s-8e, abnd 3589 ft. J. O. DeLap et al's Biggerstaff 1, e½ se nw 33-5s-8e, abnd 3475 ft.

OLD WELLS DEEPENED

Fayette County—Texas Co.'s Swarm 2, n½ n½ sw 30-6n-3e, Weil 1569-91 ft, otd 1577 ft, td 1591 ft, 20 bbls. Wooten 12, sw sw se 31-7n-3e, Weil 1534-64 ft, otd 1556 ft, td 1564 ft, 75 bbls.

Hamilton County—Texas Co.'s Davis 1, c nw nw ne 7-6s-7e, Beth 2854-75 ft, A. V. 2943 ft, td 2987 ft, 96 bbls.

Wayne County—Texas Co.'s Case 1, n½ se nw 28-1n-6e, McCl 3181-3138 ft, td 3238 ft, 327 bbls; Watson 2, s½ ne nw 34-1n-6e, McCl 3056-3100 ft, 3044-48 ft, td 3100 ft, 59 bbls oil.

FIRST REPORTS

Clay County—Cameron Bros.' Landwehr 1, nw nw ne 8-5n-7e, lcn.

Clinton County—Jack Darnell's Laux 1, c se se 6-3n-2w, lcn.

Crawford County—A. J. Foster's Link 1, sw ne sw 9-7n-14w, lcn.

Franklin County—Gulf's Malin 1, 14 ft n of c e½ se nw 23-5s-4e, lcn.

Richland County — Carlton Supd, Jr.'s Brant 1, s½ se sw 13-3n-8e, lcn.

Wayne County—Gulf's Henson 1, 12 ft n of c w½ sw nw 19-1n-5e, lcn.

White County — Minerva Oil's Ramsey 1, n½ sw ne 33-6s-10e, dr.

Williamson County—Turbeville et al's Spiller 1, se se ne 7-9s-3e, dr.

Indiana

New Pool in Gibson and Prospect in Vanderburgh

Prospect of opening a Waltersburgh sand pool in Vanderburgh County, two miles southwest of Evansville was seen as Sells Petroleum Co.'s McCarty 1, NE SW NW 32-6s-11w, was testing saturation at 1718-36 ft.

In Gibson County, Mo-Jo Oil Co.'s Dugan 1, SE SE NW 35-2s-9w, pumped 20 bbls initial to open a new pool in Mansfield sand at 1066-74 ft.

COMPLETIONS

Daviess County—Cannot's Franklin College 1, nw se se 8-2n-5w, abnd 665 ft. J. W. Cannon's Beck Hrs A-1, w½ w½ ne 8-2n-5w, Paoli 624 ft., td 634 ft, 10 bbls oil. Chas. Foster's Fegan 1, ne ne ne 17-2n-5w, abnd 658 ft.

Gibson County — R. D. Brown, Inc.'s Crecelius 1, ne sw se 36-1s-10w, Hards 1316-25 ft, td 1326 ft, 24 bbls. Continental's Bozeman Land Co. 59, sw ne sw 23-3s-14w, Cyp

Summary of Drilling Operations in the United States, Week Ended February 14, 1942

	WELLS COMPLETED						
	Completions	Oil Wells	Gas Wells	Failures	†Miscellaneous	Total 1942	Total this Date 1941
Alabama	....	....	....	....	....	2	....
Arkansas	1	1	....	....	....	16	18
California	15	15	....	....	....	142	157
Colorado	2	....	....	2	....	2	....
Georgia	....	....	....	....	....	1	....
Illinois	63	34	....	22	7	446	393
Indiana	12	7	....	4	1	61	60
Kansas	32	22	....	8	2	276	245
Kentucky	7	3	....	4	....	30	40
Louisiana	26	14	1	11	....	163	178
Michigan	15	6	1	8	....	112	101
Mississippi	2	1	....	1	....	30	21
Missouri	....	....	....	....	....	2	11
Montana	4	2	1	1	....	23	26
Nebraska	....	....	....	....	....	7	17
New Mexico	6	3	....	3	....	54	46
New York	26	11	2	....	13	189	81
Ohio	42	9	21	11	1	217	200
Oklahoma	40	21	4	15	....	280	258
Pennsylvania	43	40	2	1	....	367	439
Tennessee	....	....	....	....	....	1	3
Texas	146	92	3	40	11	1,231	1,116
West Virginia	15	2	10	1	2	103	103
Wyoming	2	2	....	....	....	10	14
Total this week	499	285	45	132	37	3,765	3,527
Total last week	513	286	48	109	70	3,249	3,008
Total this year	3,765	2,247	300	856	362	....	....

† Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

2514-33 ft, Beth 2634-63 ft, A. V. 2730-88 ft. td 2848 ft, 63 bbls; Bozeman 60, nw sw se 23-3s-14w, Cyp 2522-64 ft, Beth 2626-69 ft, A. V. 2755-87 ft, td 2787 ft, 87 bbls. Harry Adams et al's Kerr & Ginder 1, se nw ne 26-1n-10w, McC 1790-1825 ft, Salem 2065-70 ft, td 2129 ft, 145 bbls.

Pike County: Wildcat—J. Dawson & P. Stead's Patberg 1, nw nw ne 21-3s-7w, abnd 1459 ft.

Posey County: Wildcat — Ru-Mar Drlg.'s Moorelock 1, nw se nw 26-7s-14w, abnd 2387 ft.

Spencer County—Boy Benoist's Abbott 4, ne nw irreg 7-7s-7w, Walts 1010-38 ft, td 1038 ft, 150 bbls. H. & S. Drlg. Co.'s Ebie 3, e½ ne nw 7-7s-7w, Walts 1012-42 ft, td 1042 ft, 25 bbls.

OLD WELL DEEPENED

Posey County—Hollandsworth et al's Seifert 1, se sw sw 19-6s-12w, otd 1129, abnd 1995 ft.

FIRST REPORTS

Adams County—McKee's Glendening 1, se se ne 35-25n-13e, lcn.

Knox County—Walter Miller et al's Lewis 1, sw sw nw 26-2n-11w, dr.

Posey County—Mabee Oil & Gas Co.'s Gronback 1, nw nw sw 15-8s-14w, lcn.

Kentucky

COMPLETIONS

Butler County—Stewart & Phillips et al's Gardner Heirs 3, 9-H-32, Jones 419½-430 ft, td 439 ft, 8 bbls.

Daviess County—Petroleum Co.'s R. C. & D. Jewell 1, 14-N-29, abnd 1750 ft. W. K. Snyder's Jackson 6, 20-N-30, abnd 1240 ft. Parks et al's Lowe 1, 7-O-33, abnd 682½ ft.

Henderson County—Schneider & Gwin's Robards 1, 25-O-25, Sand 694-706 ft, td 712 ft, 3 bbls. Schneider & Gwin's Moss 4, 25-O-25, Sand 675-690 ft, td 690 ft, 7 bbls. Creek Drlg. Co.'s Clayton 2, 19-O-26, abnd 2305 ft.

FIRST REPORT

Henderson County—Schneider & Gwin's Robards 1, 25-O-25, dr.

Nebraska

Testing Ninth Producer In Barada Pool

Ninth Barada pool producer now testing; water showing on southern flank of field; Richardson County wildcat fails; northern extension of Falls City field to be sought.

Barada: Skelly Oil Co.'s Mack 1, CW½ SW SW 25-3n-16e, ninth oil well for field, drilled to 2530 ft in Hunton lime topped at 2480 ft, slow pumping gauge well made 122 bbls oil, no water, in 23 hrs. Operator's Zimmerman 1, CW½ SE SW Sec 36, on southern flanks of pool, pumped 300 bbls oil in 24 hrs, cutting more than 16 percent water. Davisson & Goodenkauf's Nick Schawang 1, C N NW SW 34-3n-16e, 2 mi west of Barada, cored tight, dry Hunton lime at 2555-68 ft, abandoned.

Falls City Pool: Hayden Campbell et al's Richardson County Lands 1, SWC 5-1n-16e, on tract of former County home, to seek 1 mi extension of pool, test moving in. Ohio Oil Co.'s Sandrock 6, SW NW SE 20-1n-16e, in pool proper, deepened to 2320 ft, testing.

New Mexico

COMPLETIONS

Eddy County: Wildcat—F. E. Baker and Robt. Helms' State 1, se ne ne 32-19s-27e, elev 3443 ft, abnd 1250 ft.

Eddy County—Bassett & Birney et al's State 7-B, nw ne se 11-18s-29e, 44 bbls ¼-in, shot 120 qts 2651-76 ft. Me-Tex Supply Co.'s State 2, nw ne nw 16-18s-31e, junked 1180 ft, skid 40 ft west.

Lea County: Mattix — Western Gas Co.'s Bates 2, c nw nw 18-24s-37e, 180 bbls ⅞-in, 3520-80 ft.

McKinley County — Pet. Products Corp.'s Santa Fe 25, nw sw ne 1-17n-9w, pump 51 bbls 1628-40 ft.

Otero County: Wildcat—R. H. Ernest et al's Located Land Co. 1, sec 20-25s-7e, elev 4200 ft, abnd 3941 ft.

WILDCAT START

Lea County—Mascho Oil Co.-American Drl. Corp.'s State-Tidal 1, c sw nw 18-1s-35e, 7 mi nw Tatum, lcn.

Oklahoma

Limits of Two Pools Apparently Defined

Definition of Apache field showing on eastern flanks. Drilling in Guthrie pool halted. State's deepest test near its end.

Caddo County: Texas Co.'s Mulkahay 6, NE SE SE 2-5n-12w, drilled to 3854 ft, no top on Wilcox sand (pay horizon) reported, probably will prove eastern limits of Apache field discovery of 1941, now halted at 3854 ft attempting to regain circulation, may drill ahead or plug back if unsuccessful to test gas shows in Hunton lime.

Logan County: Sunray Oil Co.'s Donoghue 8, SW SE SE 7-17-1w, defined western limits of Guthrie pool, test drilled to watery Wilcox sand at 5435-44 ft, plugged back to Bartlesville sand for slight show, temporarily abandoned. W. C. McBride, Inc.'s Eastwood 7, NE NW SW Sec. 7, drilled to 5077 ft in Bartlesville sand, flowed 450 bbls in 24 hrs, completed as last active test in field.

Near Binger: Denver Producing & Refining Co.'s Sah-Cam 1, C SE SE 33-10n-10w, Caddo County, Oklahoma's deepest drilling test, now below 13,798 ft, hard black chert, geologic age uncertain, slow and expensive drilling may halt wildcat which earlier tested slight showing in upper horizon but unproductive.

COMPLETIONS

Carter County: West Hewitt—Walter Neustadt's Choate 7, sw se ne se 18-4s-2w, sandy lime 2265-70 ft, td 2270 ft, flow 30 bbls.

Cimarron County: Wildcat—Gulf's Cox 1, se se 35-2n-8e, Day Creek 579 ft, Blain 940-1130 ft, Enid anhy 1700 ft, Miss 5080 ft, Viola 5825 ft, Simp 5944 ft, Simp 5964 ft, Arbuckle 5995 ft, abnd 6168 ft.

Creek County: Cushing—Sinclair Prairie's Yarhola 18, c nw 9-17n-7e, Oswego 2209 ft, td 2728 ft, pb 2722 ft, pump 24 bbls oil 60 bbls water.

Creek County: E. Turkegee—Bruin's Morton B-4, nw nw sw 12-7n-8e, Calvin 1065 ft, td 1076 ft, shot 20 bbls oil. Deep Rock's Anthis' 1, se sw se 22-18n-9e, Prue 2003-46 ft, td 2049 ft, shot 90 qts, flow 12 bbls oil 4 bbls water.

Garfield County: Barber—Sinclair Prairie's Campbell 23, c n½ sec 30-22n-3w, Crews sand 1963 ft, Garber 2093 ft, td 2147 ft, run 250 ft of perf liner to 2147 ft, pump 10 bbls oil.

Hughes County: West Holdenville—Tri Oil's Walker 1, ne se nw 12-7n-8e, Calvin 1065 ft, td 1076 ft, shot 20 bbls oil.

Hughes County: Unnamed — Helmerich & Payne's Hatfield 2, ne se se 10-8n-9e, Cromwell 3371 ft, td 3390 ft, pb 3381 ft, 3,000,000 gas, 450 lbs rock pressure.

Hughes County: Wildcat—P. J. McIntyre et al's Rinn-Peters 1, nw ne sw 11-9e-8e, Calvin 1590-1730 ft, Allen sand 1880-1970 ft, brown lime 2950 ft, Booch 3112 ft, Gilc 3210 ft, no show oil, Cromwell 3581 ft, no show, Mayes 4000 ft, Woodford 4125 ft, Misener 4147 ft, Hunton 4168 ft, Sylv 4250 ft, Vio 4345 ft, Dense 4375 ft, Dolo 4380 ft, 1st Wx 4410 ft, abnd 4424 ft.

Jefferson County: Oscar — Long-Yingling-Locke's Seay 35, sw se se ne 3-7s-5w, sand 1074-88 ft, td 1088 ft, pumped 48 bbls oil.

Kay County: Blackwell — Clipper Oil's Humphrey 4, ne sw sw 10-27n-1w, Stalnacker 2330 ft, td 2340 ft, pump 20 bbls oil. Floosmor O&G's State 1, c nw nw 16-27n-1w, Arbuckle 3628 ft, td 2627 ft, show oil 3631-35 ft, hole full water at 3737 ft.

Kay County: Dillworth—W. B. McKnabb's Warren 2, ne se nw 19-28n-1e, Wilcox 3308 ft, td 3329 ft, shot 20 qts, flow 63 bbls.

Latimer County: R&O Gas Feld—LeFlore G&E's Towery RO 48, se se nw 11-6n-22e, sand 1746-1890 ft, td 1985 ft, pb 1890 ft, shot 430 qts, 1,900,000 gas, 297 lbs rock pressure.

Lincoln County: Sporn — Fred Haddock's Hert 1, sw ne se 22-17n-3e, Wilcox 4538 ft, td 4555 ft, perf casing 2000 gals acid, flow 35 bbls oil, 2,500,000 gas, pressure 1700 lbs.

Lincoln County: Wildcat—J. E. Trigg's et al's Bailey 1, se se sw 22-15n-5e, abnd 3495 ft.

Logan County: Wildcat — Helmerich & Payne's Detweiler 1, se sw ne 22-18n-2w, Layton 4200 ft, L. Layton 4260 ft, Hogs 4375-4410 ft, OC ccb 4490-4515 ft, Ccb 4520 ft, Wood 5535 ft, Sylv 5590 ft, Viola 5690 ft, Dense 5738 ft, Dolo 5769 ft, softened 5792 ft, 1st Wx 5831-49 no show, 2nd Wx 5946 ft, abnd 5966 ft.

Marshall County: Cumberland—Pure's Little (210) 2, sw se nw 34-5s-7e, sand 5599 ft, td 7500 ft, pb 5723 ft, flow 112 bbls.

McIntosh County: Wildcat — McNutt & Young's Wolfe 1, se se nw 18-12n-17e, sand 933-53 ft, show good, est gas, sand 1497 ft, 1st Dutcher 1918-45 ft, sand 2312-27 ft, sand 2315-20 ft, show water, sand 2330-32 ft, abnd 2338 ft.

Okfuskee County: Wildcat—A. J. Peters' Brown 1, se nw ne 7-13n-7e, Inola 3345 ft, Caney 3690 ft, Mayes 3860 ft, Wood 4050 ft, Hunton 4075 ft, td 4081 ft, 28,000 gas, 1500 pressure.

Okfuskee County: Unnamed—Chapman & McFarlin's Deatherage 2, ne ne se 1-10n-8e, Booch 3009 ft, td 3015 ft, shot 120 qts, pump 40 bbls oil & 5 bbls water.

Okfuskee County: N. Cromwell—Titus' Sands 8, nw ne se 26-11n-8e, Cromwell 3488 ft, td 3494 ft, pb 3492 ft, shot 5 qts, pump 30 bbls oil 20 bbls water.

Okfuskee County: E. Cromwell — Shell's Tiger B-1, nw se sw 35-11n-8e, Cromwell 3459 ft, td 3476 ft, shot 8 qts, flow 151 bbls oil 72 bbls water. Van Pelt 9, 77 ft e of ne sw nw 35-11n-8e, Cromwell 3347 ft, td 3466 ft, shot 10 qts, pump 148 bbls oil & 17 bbls water.

Okfuskee County: Unnamed—Olson Drlg.'s Armstrong 1, ne ne ne 3-11n-10e, 2nd Cromwell 3286 ft, dry 3355 ft.

Oklahoma County: Oklahoma City—H. U. Clark's Hefner 1, ne sw nw ne 2-11n-3w, Oread 4105 ft, td 4287 ft, pb 3912 ft, dry. British Amer's Sheffield 1, nw sw ne nw 15-11n-3w, Wilcox 6449 ft, td 6452 ft, dry. Clark's Guthrie 1, nw sw se 15-12n-3w, Hoover 4093 ft, td 4139 ft, pb 4108 ft, shot 18 qts, perf casing, pump 55 bbls water, abn. Phillips' Whitefield 3, sw c se se 34-12n-3w, Wilcox 6283 ft, td 6498 ft, pump 530 bbls oil.

Okmulgee County: Schulter—Pine's Downing 2, c s½ se ne 30-12n-13e, top of sands 1095 ft, abnd 1170 ft.

Okmulgee County: Pollyanna—J. R. Shulte's Cox 2, sw c ne sw 12-15n-11e, sand 698-722, abnd 722 ft.

Okmulgee County: Mounds—C. D. Klingsmith's Powers 1, 130 ft e of c e½ se se 19-16n-12e, Dutcher 2065-2090 ft, td 2198 ft, 1,630,000 gas, 295 rock pressure.

Osage County: Avant—Sinclair Prairie's 54 se nw nw 20-23n-12e, Bartlesville 1677 ft, td 1678 ft, shot 20 qts, pump 25 bbls.

Osage County: Burbank—Magnolia's 8, ne sw nw 14-26n-6e, Bartlesville 2932 ft, td 2937 ft, shot 170 qts, pump 120 bbls. Phillips' 17, 60 ft e of se ne ne 22-27n-5e, Base Burbank 3033 ft, td 3035 ft, shot 88 qts, pump 36 bbls.

Osage County: Pearsonia—Ray Branstetter's 2, se nw nw nw 20-27n-8e, Miss 2331 ft, abnd 2414 ft.

Osage County: Pershing—Link Oil Co.'s 6, nw sw ne se 27-25n-9e, Miss 2262 ft, abnd 2318 ft.

Osage County: Quapaw—Phillips' 1, 30 ft s of sw sw sw 9-25n-11e, Oswego 1456 ft, td 1476 ft, 500 gals acid, pump 25 bbls oil, 20 bbls water.

Payne County: Rattlesnake—T. N. Berry's Fee 2, sw c ne sw 13-18n-3e, 2nd Wilcox 4156 ft, td 4157 ft, flow 440 bbls oil.

Pontotoc County: Ada — Hughes et al's Thomas-Smythe 1, ne nw se 30-4n-6e, Cromwell 1524 ft, td 1579 ft, shot 14 qts, abnd.

FIRST REPORTS

Comanche County—Texas Co.'s Rolls 1, c se sw 5-3n-10w, lcn.

Jefferson County—Carter Oil Co.'s Robinson 1, c sw sw 19-4s-6w, lcn.

Lincoln County—Helmerich & Payne's Harper 1, c s½ sw nw 20-14n-5e, dr. R. L. Kemp's Rhodes 1, sw sw se 28-17n-6e, dr.

Okfuskee County—Mid-Continent's Meherher 1, ne ne se 7-11n-7e, lcn.

Pottawatomie County—Continental's Hallum 1, sw nw ne 6-8n-5e, dr. C. W. Sharpe's Wells 1, ne se se 1-9n-2e, rur.

Stephens County—Kingery Production Co.'s Edwards 1, c e½ se se 14-1n-4w, lcn.

Kansas

Fourth Pool for Year Has 185 Barrels Initial

Reno County gets Kansas' fourth new oil field for 1942; plugback producer in Barber County showing for major discovery; Burnett field extended.

Reno County: Cities Service Oil Co.'s Morton 1, NWC SE 17-28s-4w, 4 mi west of the Abbeyville pool, drilled to 3195 ft in Kansas City-Lansing lime topped at 3180 ft, perforated casing, flowed 185 bbls in 24 hrs after acidizing, opens fourth new field for 1942.

Barber County: Champlin Refining Co.'s Hildebrand 1, CE½ NE NW 26-32s-15w, 12 mi southwest of Lake City pool, drilled to 5191 ft in Arbuckle lime, no shows in lime or Simpson dolomite, plugged back to 4931 ft in Viola lime, perforated, well making est 13,000,000

gas daily with heavy spray of oil, increasing hourly, may open new production.

Ellis County: Virginia Drilling Co.'s Feldkamp 1, CS½ NE NW 11-11s-18w, extended Burnett field ½-mi northwest, drilled to 3474 ft in Arbuckle lime and acidized, well was good for depthograph potential of 2955 bbls oil daily, given maximum rating by conservation commission.

COMPLETIONS

Barber County: Lake City—Pryor & Lockhart et al's Gant C-2, 220 ft n of c n½ ne 18-31s-13w, Simpson 4531 ft, td 4541 ft, shot 40 qts, pump 343 bbls.

Barton County: Krier — Johnson et al's South Oeser 2, sw sw sw 30-16s-11w, Lansing 3037 ft, td 3142 ft, pb 3100 ft, perf 5500 gals acid, pump 294 bbls.

Barton County: West Silica—Iron Drlg.'s Bacon 2, c s½ se sw 8-20s-11w, Arbuckle 3294 ft, td 3319½ ft, 500 gals acid, pump 395 bbls.

Butler County: Burgess—Adair & Morton's Sawyer A-3, Miss 2734 ft, td 2748 ft, 4000 gals acid, pump 375 bbls oil, some salt water.

Cowley County: Frog Hollow—Leader Oil Co.'s Moon, se sw sw 16-32s-5e, Bart 3009 ft, td 3070 ft, shot 40 qts, flow 450 bbls.

Elk County: Youngmeyer—Imo Oil & Gas Co.'s Porter Ranch 1, sw se sw 24-28s-8e, Arb 2906½, td 2913 ft, pump 40 bbls.

Ellsworth County: Stoltenberg — Aylward Prod.'s Boye 3, c n½ ne sw 9-16s-10w, Arb 3303 ft, td 3305 ft, pump 48 bbls oil, 15% water.

Greenwood County: Toronto—Pryor & Lockhart's Baker 1, se ne se 17-26s-13e, Miss 1531 ft, td 1572 ft, 2000 gals acid, abnd.

Jefferson County: Wildcat—W. D. Dunn et al's Everett 1, se se sw 36-8s-19e, Bart 1562 ft, Miss 1586 ft, abnd 1800 ft.

Marion County: Lost Springs—T. C. Johnson et al's Thompson 2, c n½ sw ne 26-17s-4e, Miss 2317 ft, td 2369 ft, pump 25 bbls.

Phillips County: Ray—Cities Service's Johnson "B" 6, ne se se 31-5s-20w, granite 3590 ft, abnd 3591 ft.

Pratt County: Cunningham — Sinclair-Prairie's Greider 3, sw ne ne 35-27s-11w, Lansing 3454 ft, td 3505 ft, 5000 gals acid, pump 511 bbls oil 56 bbls water.

Pratt County: Iuka—Atlantic et al's Luders 2, c e½ sw ne 11-27s-13w, Simpson 4288 ft, abnd 4303 ft.

Reno County: N. E. Peace Creek—Leader Oil's McMurry 1, ne se se 10-23s-10w, Viola 3769 ft, td 3783 ft, 3000 gals acid, pump 398 bbls. Cities Service's Heylmon 1, ne ne ne 15-23s-10w, Viola 3764 ft, td 3776 ft, 3500 gals acid, potential 1348 bbls oil, 42 bbls water.

Reno County: Peace Creek—Derby's Mathis 2, ne se se 16-23s-10w, Vio 3753 ft, td 3785 ft, 5000 gals acid, pump 436 bbls. Simpson & Taylor, Hohenbeck 1, ne se nw 28-23s-10w, Viola 3793 ft, td 3810 ft, 1000 gals acid, potential 3000 bbls.

Reno County: Abbyville—Skelly's Love 1, c s½ sw ne 24-24s-8w, Lansing 3190 ft, td 3543 ft, 4000 gals acid, pump 377 bbls.

Rice County: Haferman—McPherson Drlg.'s Patton B-4, se ne se sw 9-19s-9w, Arb 3214 ft, td 3760 ft, salt water disposal well.

Rice County: Cramm—Lauck & Moncrief's Murphy 2, c s½ se nw 22-19s-9w, Arb 3209 ft, td 3219 ft, 1000 gals acid, potential 1533 bbls.

Rice County: Silica—Skelly's Knobb 1, ne ne sw 21-19s-10w, Lansing, td 3229 ft, pb 3212 ft, perf 3111-3126 ft, 4750 gals acid, pump 478 bbls.

Rice County: Wildcat — Nelson Drlg.'s Smyres 1, ne ne sw 36-19s-6w, Lansing 2778 ft, Miss 3323-26 ft, first oil 3339 ft, td 3354½ ft, potential 3000 bbls.

Russell County: Fairport—C. E. Liggett's Abbot 1, c w½ nw se 29-11s-15w, Lansing 2899 ft, td 3271 ft, perf 3500 gals acid, 60 bbls oil & 144 bbls water.

Russell County: Hall-Gurney — Eldorado's Phinney 1, c s½ se nw 19-14s-13w, Gorham 3204 ft, dry 3232 ft. Magnolia's Ruby 1, c s½ sw ne 25-14s-13w, Arb 3148 ft, td 3152 ft, pb 2873 ft, 3000 gals acid, abnd. Skelly's Carter 2, c n½ ne ne 33-14s-13w, Lansing 2842 ft, td 3135 ft, pb 2972 ft, perf, pump 507 bbls.

Russell County: Gorham—R. H. Witt's Witt 2, c sw½ w½ ne 7-14s-14w, Lansing 3097 ft, td 3183 ft, 8200 gals acid, pump 186 bbls oil.

Russell County: South Big Creek—Eldorado's St. Aubyn 1, nw nw ne 1-15s-15w, Gorham 3194 ft, dry 3224 ft.

Sedgwick County: Valley Center — Prunty Prod.'s Wright 1, sw sw ne 12-26s-1w, Viola 3339 ft, td 3340 ft, pump 12 bbls oil, 1200 bbls water.

Stafford County: McNaughten—Atlantic & Phillips' McNaughten B-4, c w½ e½ ne 27-24s-13w, Lansing 3563 ft, Arb 4106 ft, td 4110 ft, 6000 gals acid, pump potential 58 bbls oil & 22 bbls water.

Sumner County: Geuda Springs — E. B. Shawver's Padgett 1, sw c ne sw 23-34s-2e, Miss 3463 ft, abnd 3576 ft.

OLD WELL DEEPENED

Barton County: Silica—R. E. Hess' Schmidt 1, c s½ sw sw 36-19s-11w, otd 3302 ft, Arb 3280 ft, td 3328 ft, pb 3105 ft, 2500 gals acid, water, abnd.

FIRST REPORTS

Cowley County—Winkler-Koch's Martin 1, c w½ nw ne 17-31s-4e, pits.

Jefferson County—Pryor & Lockhart's Varner 1, c e½ ne se 11-11s-19e, spud.

Morris County—Frank Bros.' Crocker 1, c nw nw 7-15s-7e, dr.

Rooks County—Cities Service Oil's Conger 1, ne ne nw 22-10s-16w, lcn.

North Texas

Deep Drilling Gains After Year-End Lull

Deep prospects gaining in volume after year-end lull. Jack County deep-lime wildcat showing for producer. Montague County wildcat passes up oil show in Strawn, and development increasing within county's sparsely explored Bend areas.

Deep Prospects: In Southwestern Wichita County, O. H. Hammer et al's Hamilton 1, C SW NW H&TC 11, Blk 7, scheduled 4300-ft test and 1½ miles north of Strawn production in K-M-A field. Geo. Proctor et al's Pearston 1, 3½ miles northwest of Archer City, will try for Canyon production in area that previously held spotlight due to Canyon showings. Two offset tests situated 1½ miles northwest of Clingingsmith 5-well pool, Montague County, authorized by Sinclair Prairie, and work underway on Jess Sanders 1, SWc Blk 114.

Jack County: Joe A. Worsham et al's Sewell 1, Daniel Crenshaw Survey, pending discovery 7 miles southeast of Jacksboro, filled 3000 ft with oil in 5 hours after drilling plugs from 5½-in 4687 ft and deepening to 4917 ft. Production is from Bend, topped at 4676 ft, with first saturation at 4685 ft. Fourth consecutive flowing producer for Hoefle pool involves Hanlon & Buchanan, Inc.'s Hoefle 1-C, southwest offset to discovery, which gauged 214 bbls through 18/64-inch choke in 6 hours after acidizing Bend saturation 4868-88 ft. Taubert-McKee and Sinclair Prairie's Hoefle 1-A, northwest offset to discovery, failed to flow after using 1000 gals acid in broken saturation at 4931-81 ft in Bend, topped at 4931 ft, and will be reacidized.

Montague County: Sinclair Prairie's Jones 1, wildcat and 1¼ miles northeast of Forestburg, logged broken saturation in Strawn 4810-20 ft, but drill-stem test proved negative, and was drilling shale 4960 ft. The company's Collier 1 and Henderson 1, situated on separate geophysical highs, were drilling shale at 4400 ft and 3210 ft, respectively. Continental Oil Co.'s Mueller 1, wildcat and 6 miles east of Bowie, was drilling shale 5480 ft.

Wildcats: Continental, Roy Lee and Hassie Hunt's Watson 1, southwestern Clay County recent strike, remained shut in after testing 260 bbls oil 8 hours natural from lime saturation 5460-84 ft in Bend, topped at 5198 ft. Sinclair Refining Co. considering 2¼-mile 2-inch extension from its Antelope pool system to connect this new pool, which has been assigned new test by Hunt et al. L. T. Burns et al's Lyles 1, Clay County wildcat and 4 miles southeast Blue Grove, abandoned in dry Ellenburger 6298 ft after deepening from 5606 ft. Continental's Ferguson 1, Archer County wildcat between Hull-Silk and K-M-A fields, drilling shaley-lime 4835 ft in Bend, topped 4468 ft with favorable saturation 4511-21 ft. Sinclair Prairie's Coleman 1, 5 miles north by west of Scotland, drilling shale 5610 ft after running tester at 4 levels with negative results in Bend, topped at 5292 ft. The latter's Sloop 1, 1¼ miles southeast Vogtsberger pool and also in eastern Archer County, drilling black shale 4840 ft. In western Grayson County, Sinclair Prairie's Wheeler 1, 1½ miles southwest of Collinsville, entered Ellenberger at 3947 ft, and drilling dry dolomite 3990 ft; drill-stem test at 3809-31 ft in sand, topped 3808 ft, yielded 215 ft muddy brackish water. Robt Tolbert and Finston's Jewell 1, northwestern Grayson County Ordovician prospect, logged nominal oil odor and stain 7168-7209 ft, and fishing drill pipe 7356 ft.

Clay County: Shell's Polzin 1, northwest edge New York City pool, awaiting casing to try for completion in Mississippian 6318-95 ft, with dry Viola at 6395-6445 ft.

COMPLETIONS

Archer County—Pace Pet. Co.'s Abercrombie 32-B, blk 156, Harris subdiv, pump 9 bbls 1163-72 ft. Rancho Oil Co.'s Prideaux 1-B, blk 23, John Dorsey sur A-122, abnd 698 ft.

Clay County: Wildcats—Bridwell Oil Co.'s Edrington 17, 2000 ft from w and 4000 ft from s HT&B 37, A-229, abnd 1648 ft. F. H. Gohlke et al's Bilbrey 2, 1100 ft from se and 220 ft from ne lines blk 27, Pratt subdiv, abnd 1194 ft.

Clay County—Akin-Dimock-Costley's First Texas Joint Stock Bank 2, 1901 ft from n and 1483 ft from w blk 9, Thornberry subdiv, abnd 1210 ft. Johnson & Kouri's Taylor-Elliott 11, blk 56, Bacon subdiv, pump 36 bbls 1118-40 ft. A. P. Kouri et al's Taylor 1-45, blk 45, Bacon subdiv, pump 100 bbls 1136-43 ft. Staley Oil Co.'s Hamilton 8, blk 83, Byers subdiv, pump 41 bbls 1115-21 ft, td 1123 ft.

Clay County: Halsell—Bridwell Oil Co.'s Halsell 9-A, 467 ft from s and 3106 ft from w lines sec 8, A. P. Belcher sur, Bend 5388 ft, Ellenberger 5666 ft, abnd 5935 ft.

Clay County: Ross-Jolly—Continental-Dillard-Superior's Ross 7, 1481 ft from w and 4038 ft from n sec 31, Wm. Walker sur, flow 587 bbls ¾-in. acid, Bend 5362-5477 ft.

Cooke County—Trumter Pet. Corp.'s Stacey 15-B, J. Clark sur, A-194, pump 40 bbls 756-65 ft.

Montague County: Benton-Holmes — Ross Drlg. Co.'s 1st Natl Bank (St. Jo) 1-B, 330 ft from n and 1401 ft from w lines J. L. Graham sur, pump 83 bbls, granite-wash 3797-3834 ft.

Wichita County—Buffalo Oil Co.'s Ferguson 10-E, blk 8, W. H. Spillers sur, abnd 1520 ft. Dinsmore & Stipe's Knotts 1, blk 223, Waggoner Colony, abnd 1137 ft. K. D. Harmon et al's Sherrod 1, lot 3, leag 4, Denton CSL, abnd 1835 ft. Westbrook Oil Corp.'s Ramming 5-B, H. Hastie sur A-92, abnd 1292 ft.

Wilbarger County: Wildcat—W. H. Peckham et al's Waggoner 1-A, swc se H&TC 49, blk 4, abnd 1950 ft.

Young County: Wildcat—Seth Cockrell et al's Johnson 1, nw sw TE&L sec 25, Gunsight 686 ft, abnd 765 ft.

Young County—Cato et al's Hamilton 5-B, TE&L sec 1393, abnd 961 ft. S. D. Glover et al's Johnson 31, lot 9, E. W. Sergent sur, pump 6 bbls 575-91 ft. Mid-Continent's Grimshaw 6, J. E. Dowdle sur A-2250, 1544 bbls 42/64-in, acid 1500 gals 3970-4013 ft. Panhandle's Harrell 1, sec G. N. Smith sur, top Bend 3558 ft, abnd 3658 ft. Panhandle-Rankin-Fagadau's Harlan 4, P. Jaime sur A-157, 4,240,000 gas, sand 2739-49 ft.

OLD WELLS DEEPENED

Clay County — Burns-Wynn (Joy) L. T. Burns et al's Wynn 1, 330 ft from e 990 ft from s lines blk 34, H. Williams sur, otd 5967 ft, flow 988 bbls, ¾-in, acid 4000 gals, Mississippi 5905-6053 ft, td 6088 ft in dry Ellenburger.

Young County—Thos. D. Humphrey et al's Butler 1, swc TE&L 462, otd 3947 ft, abnd Mississippian 4853-4890 ft. W. E. Prod. Co.'s Brown-High 2, nw sw TE&L sec 624, otd 4008 ft, abnd Mississippian 4936-57 ft.

WILDCAT STARTS

Archer County—George Proctor et al's E. V. Pearston 1, 660 ft out swc sec 122, Robt. Carson suddiv Harris ranch, 3 mi nw Archer City, lcn 3000-ft test.

Clay County—Bridwell Oil Co.'s Edrington 18, 50 ft from s and 1650 ft from w lines HT&B 35, lcn. Akin-Dimock-Costley's Huff 2, 700 ft n and 1150 ft w of nec of J. Bradshaw sur A-17, 150 ft s river, lcn. W. A. Spradling et al's J. P. Sunday 1, 375 ft from w and 510 ft from s lines 201.4-ac tr. A. McGown sur A-319 and J. O. Butler sur A-36, lcn.

Cooke County—W. F. Russell et al's Mrs. M. Gwynn 1, 660 ft from nw and sw lines H. Jennings sur A-531, lcn.

West Texas

Weiner, Winkler County Being Extended North

Winkler County pool extended 1¼ miles north. Scheduled tests for recent Clear Fork strike in Andrews County increased to three. Ordovician prospect in Northeastern Pecos County nearing decisive level, and Abell field lists first important Ellenburger production after two small completions.

Winkler County: Ralph Lowe et al's Brown-Altman-Humble 1, SW SE SW PSL Sec 24, Blk B-5, 1¼ mi north of production in sparsely explored Weiner pool, was flowing 150 bbls oil and 5,000,000 ft gas daily from sandy-lime 3021-90 ft, and drilling 3110 ft. Logged top Yates 2312 ft, elevation 2818 ft, being 27 ft high to Weiner et al's Halley-Texaco 1, nearest producer in this horizon. John R. Sharp et al have authorized 9-well drilling program on farmed-out acreage to north and south of latter. Area is immediately east of Emperor pool, but in deeper section of Permian, and was uncovered by Texas Co.'s Halley 1, SWC PSL Sec 7, in 1936 with a small pumper.

Andrews County: Fullerton Oil Co.'s Wilson 1, recent Clear Fork discovery, flowed 173 bbls oil 9 hours, 1-in choke, after re-perforating at 7130-7210 ft and using 1500 gals acid in this zone. Previously it had flowed 455 bbl 41-gr oil 15½ hrs after acidizing perforations at 7215-75 ft, having plugged back from 8005 ft. Company's Wilson 2, west of discovery, was drilling 2250 ft, and Wilson 3 was inactive with cellar dug. Magnolia's Wilson 1-11, C SE SE PSL Sec 11, Blk A-37, and ¼-mi west by south of discovery, was due to spud.

Pecos County: Magnolia's Price 1, SEc N½ H&GN 4, Blk 12, situated 6 mi east by north of Ellenburger production in Wentz pool and 8½ mi southwest of McCamey, is credited with entering Simpson shale at 4735 ft, elevation 2313 ft, and drilling sandy-lime 4800 ft. Sulphur gas shows at close intervals in the Permian below 2790 ft has placed this prospect in the limelight. Pure Oil Co.'s T. P. Land Trust 1-A, extreme Western Pecos County Delaware discovery, flows 55 bbl oil daily by heads after cleaning out cavings resulting from two nitro shots. This wildcat was plugged back from 6001 ft to 5274 ft.

Abell: Magnolia and Geo. Abell's Myrick-State 3-A, on strip lease in southeast portion of field, flowed 698 bbl 41.5-gravity oil and 38 bbl water initial on ½-in choke to become the third and largest Ellenburger producer. Used 1000 gals acid in dolomite 5870-82 ft in Ellenburger, topped at 5755 ft.

Lower Permian Strike: Big Lake Oil Co.'s University 19-C, scheduled Ordovician test that opened new oil level in Permian for northeast edge of Big Lake field, Reagan County, cemented 7-in at 4195 ft to try for completion in broken Permian saturation 4212-4381 ft, elev 2677 ft. Well flowed average above 100 bbls 43-gr oil hourly, gas volume rated 2,000,000 daily, when tested through tubing with packer while carrying open hole below 2871 ft. Production from McKnight or Tubb zone in Permian, and not noted in previous deep wells. Amerada has 3-well drilling program under way in Barnhart deep area, and University 1-R-D, east outpost, drilling 8680 ft.

Wildcats: Geo. P. Livermore's Moxley 1, southwestern Lubbock County, filled depth contract at 6007 ft and awaiting orders. No shows encountered, although credited with having reached Clear Fork objective. In Briscoe County, Phillips Petroleum Co.'s Montague 1, 9 miles south Silverton, drilling shaley-lime 7260 ft with Ordovician as objective. Dunigan Bros. and Brahaney's Henard 1, Yoakum County regular Permian prospect, halted in sulphur water 5353 ft, having entered San Andres at 5420 ft, elev 3693 ft. In Northeastern Ward County, Shell's Sealy-Smith 1, Ordovician prospect, drilling 8530 ft, hard formation.

COMPLETIONS

Andrews County: Wildcat—Fullerton Oil Co.'s Wilson 1, ne sw se PSL 15, blk A-32, flow 703 bbls 1-in, acid 6500 gals, Clear Fork perf 7215-75 ft, td 8005 ft.

Andrews County: West Fuhrman—Seaboard Oil Co.'s Thornberry 2, swc PSL 18, blk A-42, 366 bbls 1-in, acid 5000 gals, 4352-4500 ft.

Cochran County: Slaughter—Honolulu Oil Corp.'s Igoe-Smith 21, swc lab 8, leag 56, Oldham CSL, flow 748 bbls, 2.7% bs&w, 2½-in, acid 10,000 gals 4970-5045 ft. Magnolia's Mallet 10-A, nec lab 6, leag 50, Scurry CSL, flow 911 bbls cas, acid 10,500 gals 4970-5019 ft; Mallet 14-A, swc lab 15, leag 50, flow 1993 bbls cas, acid 10,500 gals 4970-5049 ft; Mallet 16-A, swc lab 14, leag 50, flow 1756 bbls cas, acid 10,500 gals, td 5050 ft.

Crane County: Church-Fields—Bert Weekley et al's University-Collett 4, nw sw ne 34, blk 30, pump 628 bbls, shot 450 qts 3010-3125 ft.

Crane County: Sand Hills—Shell's Barnsley 1, nec PSL 30, blk B-27, 3 mi s nearest Permian production but offset Ellenburger, flow 581 bbls oil and 22 bbls water, acid perf 4174-4216 ft, td 5667 ft in dry Ellenburger.

Crockett County: Todd Deep—Amerada et al's Todd 2-F, c nw sw GC&SF 25, blk WX, elev 2507 ft, Crinoidal 6050 ft, Ellenburger 6282 ft, abnd 6305 ft.

Ector County: Foster—Continental's Johnson 8-B, nec T&P 5, blk 42, T-2-S, flow 307 bbls, shot 320 qts 4190-4300 ft. Forest Development Corp.'s Moss 8-A, c se sw T&P 42, blk 42, T-2-S, flow 418 bbls 2-in, shot 480 qts 4160-4320 ft. Geo. P. Livermore's Johnson 3-35, sw se se T&P 35, blk 43, T-1-S, flow 420 bbls ½-in, shot 90 qts 4109-4147 ft, td 4156 ft. Sinclair Prairie's Johnson 2-D, sw se se T&P 27, blk 43, T-1-S, shot 160 qts 4160-4200 ft, td 4260 ft, abnd.

Ector County: Goldsmith—Gulf's Goldsmith 383, nec se T&P 20, blk 44, T-1-S, flow 440 bbls 2-in, acid 4000 gals, td 4221 ft; Goldsmith 384, nec se T&P 19, blk 44, T-1-S, flow 737 bbls 2-in, acid 4000 gals, td 4277 ft.

Ector County: Judkins—Gulf's Connell 19-B, ne nw se PSL 26, blk B-16, flow 264 bbls 2-in, shot 809 qts, 3389-3642 ft.

Ector County: North Cowden—Stanolind's Midland Farms 3-D, sw sw nw T&P 45, blk 42, T-1-N, flow 640 bbls 2½-in, shot 388 qts 4580-4705 ft.

Hockley County: Slaughter—Magnolia's Mallet 11-F, nec lab 14, leag 49, Scurry CSL, flow 1401 bbls cas, acid 10,500 gals 4994-5030 ft; Mallet 12-F, swc lab 13, leag 49, flow 1272 bbls cas, acid 10,500 gals 4995-5025 ft.

Mitchell County—Magnolia's Foster 11, ne nw sw T&P 7, blk 29, T-1-N, pump 155 bbls, shot 555 qts 2640-2795 ft, td 2807 ft. Standard of Texas' Foster 2, c ne nw T&P 7, blk 29, T-1-S, flow 639 bbls, shot, td 2760 ft.

Pecos County: Abell—Magnolia and Geo. Abell's Myrick-State 3-A, strip 137.3-ac vacancy, flow 698 bbls 41.5-gr oil and 38 bbls water ½-in, acid 1000 gals, Ellenburger 5755-5882 ft. Stanolind's Crockett 3, 660 ft from sw and 660 ft from e 165.4-ac lse, H&TC 4½, blk 3, flow 1820 bbls natural ½-in, Simpson perf 5080-83 ft, td 5105 ft.

Pecos County: Lehn—Burk Roy. Co.'s Sullivan 10-B, 2310 ft from sw and 1650 ft from se lines H&GN 72, blk 10, shot 80 qts 1657-70 ft, abnd 1770 ft; Sullivan 9-C, 990 ft from nw and 2970 ft from sw lines H&GN 72, blk 10, flow 160 bbls ½-in, shot 80 qts 1695-1717 ft.

Pecos County: Taylor-Link—Lee Pet. Co.'s University 1-D, sw nw ne sec 32, blk 16, pump 101 bbls, shot 90 qts 1380-1428 ft, td 1435 ft.

Pecos County: Tobarg—Phil Broun et al's Tippett 22, sw se GC&SF 40, blk 194, pump 12 bbls, 491-530 ft.

Pecos County: Walker—Cities Service's White-Baker 2-B, sw ne nw GC&SF 86, blk 194, flow 342 bbls ⅜-in, shot 90 qts 2090-2119 ft.

Terry County: Slaughter—Gulf's Mallet 13, ne se ne PSL 5, blk D-11, flow 1517 bbls 2-in, acid 10,000 gals, td 5015 ft.

Ward County—Gulf's O'Brien 200, se sw nw sec 18, blk F, flow 389 bbls 2-in, shot 400 qts 2610-2720 ft.

Winkler County: Wildcat—Union Oil Co.'s Driver 1, c nw nw PSL 19, blk B-6, elev 2925 ft, anhydrite 1070 ft, brown lime 2588 ft, Yates sand 2650 ft, abnd 4256 ft.

Winkler County: Keystone—Perker Drlg. Co.'s Ward 4, 440 ft from n and 1320 ft from e lse, PSL 24, blk B-3, flow 161 bbls ½-in, shot 460 qts 3120-3310 ft.

Yoakum County: Wasson—Drilling & Explo. Inc.'s Hudson-Shell 7-C, c sw ne sec 834, flow 491 bbls 7/16-in, acid 9000 gals 4915-5110 ft.

OLD WELLS DEEPENED

Crane County: Gulf-McElroy—Gulf's McElroy 18, ne ne sec 201, blk F, otd 2925 ft, pump 166 bbls, shot 860 qts 2809-3013 ft.

Ward County—Tide Water Associated's Johnson 35, H&TC 28, blk 34, otd 2657 ft, flow 47 bbls and 4 bbls water ⅛-in, shot 180 qts 2900-3009 ft.

WILDCAT START

Dickens County—Humble's Matador L&C Co. 2, c sw sw sec 5, blk 1, Shock-Arnold sur, 18 mi ne Dickens, mim Ordovician test.

Texas Panhandle

COMPLETIONS

Carson County—Dyck Oil Co.'s Noel 5, I&GN 187, blk 3, pump 145 bbls, 3152-3232 ft, td 3240 ft.

Gray County—Phillips' Taylor (Tay) 5, H&GN 24, blk B-2, pump 122 bbls, shot 360 qts 2935-3031 ft. Texas Co.'s Benedict 2, ne H&GN 55, blk B-2, pump 183 bbls, shot 405 qts 3035-3108 ft, td 3110 ft.

Hutchinson County—Buffalo Oil Co.'s Cockrell 3, TCRy 3, blk M-21, pump 197 bbls, shot 2971-3106 ft. J. M. Huber Corp.'s Bryan 4, TCRy 2, blk M-24, pump 82 bbls, shot 40 qts 3243-49 ft; Bryan 7, TCRy 2, 350 bbls gas lift 3217-67 ft. Pennowa Oil Co.'s Perkins 4, sec 25, Jas. McDaniel sur, pump 276 bbls, shot 330 qts 3015-98 ft, td 3102 ft. Cy Reiger et al's Merchant 2, H&TC 32, blk 47, pump 25 bbls 2705-10 ft, td 2720 ft. Stanolind's Starnes 1, nwc west 81-ac of s½ TCRy 24, blk M-23, pump 136 bbls, shot 508 qts 3100-91 ft. Texas Co.'s Lewis 40, pump 134 bbls, shot 320 qts 2960-3080 ft.

Wheeler County—H. C. Gould et al's Walker 4, H&GN 90, blk 13, pump 265 bbls, granite-wash 2060-72 ft. Smith Bros. Ref. Co.'s Johnson 15, H&GN 34, blk 24, 1,900,000 gas, 45 lbs pressure, 2080-2200 ft, td 2756 ft.

West Central Texas

COMPLETIONS

Brown County—J. C. Hamer et al's Morgan 1-A, nec nw BBB&C 32, abnd 853 ft. Clarence F. Miller et al's Hennigan 1, se nw MEP&P sec 1, pump 8 bbls acid 1000 gals 947-62 ft.

Eastland County: Wildcat—L. A. Thompson et al's Fox 1, blk 49, Leagues 3 & 4, McLennan CSL, abnd 1480 ft.

Jones County: Wildcat—Merry Bros. and Perini's Lundgren 1, ne nw ne H&TC 20, blk 3, elev 1530 ft, Palo Pinto lime (dry) 3316 ft, abnd 3376 ft.

Jones County—W. D. Brookover et al's Church 2, 330 ft from s and 827 ft from lse, blk 88, DeWitt CSL, flow 605 bbls natural 2310-40 ft. Pet. Producers Co.'s (Shell) Walker 1, swc T&P 46, blk 16, pump 8 bbls 1763-65 ft, td 2003 ft, pb to 1790 ft.

Shackelford County: Wildcats—B. & F. Bonded Warehouse Co.'s Jameson 1, 833 ft from se and 4900 ft from sw lines TE&L 489, abnd 873 ft. C. J. Kleiner & Heltzel's Dawson-Conway 1-A, swc n½ ET Ry 146, pump 66 bbls 38-gr oil Tannehill sand 1427-35 ft, td 1441 ft. E. C. Lawson et al's Reeves 1, swc ne H&TC 14, blk 3, elev 1597 ft, top Palo Pinto 3196 ft, abnd 3267 ft.

Shackelford County—Kittery Oil Co.'s Hendrick 1-A, AB&M 1, blk A, 2,000,000 gas, sand 1614-20 ft, td 1822 ft, pb to 1620 ft.

Stephens County—FHE Oil Co. et al's Corbett 3, sec 2, A. W. Corbett sur, A-1971, 240 bbls 5/32-in, lime 3983-86 ft; TP Land Trust 1, SP 3, blk 3, flow 6 bbls, lime 4029-34 ft, td 4105 ft pb to 4043 ft.

OLD WELL DEEPENED

Shackelford County: R. H. Roark et al's Elliott 1-A, c sw se L. A. L. sur, discovery Strawn gasser, otd 2889 ft, td 2901 ft, no increase in gas 6,500,000 ft.

WILDCAT STARTS

Comanche County—L. B. Tannehill et al's Terrill 1, 883 ft from nw and 2700 ft from sw lines Swanson Yarberry sur A-1035, sp and sd.

McCulloch County—Homer Easterwood et al's W. C. Johnson 1, 660 ft out swc nw A. Nauendorf sur 1355, 4 mi n Melvin, (rotary) lcn.

East Texas

Big Field Has Heavy Pressure Drop in January

Three Woodbine failures listed the past week. Explorations to be resumed on shore-line trend in Cherokee County. Chapel Hill adding prolific oil and gas-distillate wells. Reservoir pressure in East Texas field has abnormal dip.

Wildcat Failures: In northeastern Navarro County, Dodwell & Eubank's West 1, situated on Bazette fault trend, logged Woodbine 2890-3176 ft, with water in lower section. Geier Bros. & Jackson, Inc.'s Devaughn 1, Leon County geophysical prospect, entered Woodbine at 5665 ft, elevation 252 ft, estimated 150 ft high for area, but sand was absent in upper section, reached water at 5797 ft and abandoned at 5823 ft. Carpenter et al's White 1, Big Sandy area, Upshur County, tested dry in sand 4904-98 ft, and may continue to Georgetown, although relatively low on structure.

Woodbine Prospect: John G. Mayo and H. R. Burden's New Birmingham 1, B. Newton Survey, marks resumption of prospecting along shore-line trend in Cherokee County, 5 miles northeast of Rusk.

Trinity: W. B. Hinton et al's Lumpkin 1, projected Paluxy test for Dalby Springs area, southwestern Bowie County, is slated to carry large hole so as to be prepared to continue to Smackover lime should structural conditions warrant. Majors are well fortified with leases in area and will likely help finance deepening operations, which would be the first of a series of such tests to be drilled on the Talco-Mexia fault trend as result of the Midway strike in Arkansas.

Houston County: Lone Star Gasoline Co. and Trinity Gas Corp.'s Newman-Gulf 1, southwest outpost for Grapeland field, rated 90,000,000 ft gas, with 32 bbls distillate per million, on open-flow test from Woodbine perforations 5882-5904 ft. Partnership acquired all available acreage beyond this operation on strength of its high structural position.

Chapel Hill: Sun's Jackson 1, John Slayden Survey, provided northeast extension with flow of 362 bbls oil in 8½ hours through ⅜-inch choke, acidized Pettit perf 8154-8335 ft with 4000 gallons. Sinclair Prairie's Walton 1, S. Box Survey and south offset to dual completion on north edge field, was showing for prolific gas and distillate well while cleaning itself. Production from Paluxy perf 5746-5818 ft, total depth 8292 ft, and test also to be made for oil in three comparatively thin Pettit porous zones as well carries permit for dual completion. Topped Pettit 8019 ft, elev 471 ft. Chapel Hill Gas System's Gilliam 1, A. B. Harris Survey and ¾ mile east of oil production on west edge structure, rated at 87,000,000 ft wet gas after using 4000 gallons acid in Pettit perf 7980-8068 ft, having previously tested water in the 7400-ft Rodessa lime.

East Texas Field: Average bottom-hole pressure in the East Texas field declined 15.85 pounds to a new low record of 1009.73 pounds during January, according to regular monthly survey made by Texas Railroad Commission engineers. This drop is the greatest since September and October, 1939, when pressure receded to normal level after building up due to field being shut in August 15, 1939, for 14 consecutive days. Engineers are unable to account for the sudden slump in reservoir pressure as drilling has been almost at a standstill since the first of the year while oil and salt water withdrawals have been on a routine basis. However, the salt water yield has exceeded the daily oil production in recent months.

Survey of the field made by commission as of December 15, 1941, estimated the salt water output at 439,105 barrels daily, as compared to 205,492 barrels daily on November, 1940, survey. The field was credited with 25,850 wells, including 7152 pumpers and 979 air- and gas-lift wells.

COMPLETIONS

Camp County: Pittsburg—Gulf's Stewart 1, 660 ft out sec G. W. Lewis sur, pump 109 bbls, acid Travis Peak perf 7889-7934 ft, td 8551 ft.

Fannin County: Wildcat—Damon Oil Co.'s Chaffin 1, 480 varas from n and 400 varas from w lines A. C. Ketchum sur, Woodbine 897 ft, Georgetown 1254 ft, abnd 1516 ft.

Freestone County: Wortham—Barney Carter et al's Crouch 2, north corner 60-ac lse, R. B. Longbotham sur, abnd Woodbine water sand 2942 ft.

Gregg County: Willow Springs—Lone Star Gasoline Co.-Roger Lacy's Skipper 1, 1340 ft s of s cor Alex McDonald sur and 1620 ft from e line John Belcher sur, 38,000,000 gas, 12 bbls distillate per million, acid 6000 gals, Pettit perf 7269-87 ft, td 7375 ft.

Leon County: Wildcat—Geier Bros. & Jackson, Inc.'s DeVaughn 1, 930 ft from se and 467 ft from sw lines 150-ac tr, Wm. Little sur, elev 252 ft, Pecan 4050-4350 ft, Austin 5151-5420 ft, Woodbine 5665 ft, water sand 4797 ft, abnd 5823 ft.

Wood County: Hawkins—Humble's W. D. Dagnell 2, nec 62.49-ac lse, Willis Parker sur, flow 441 bbls ¼-in, Woodbine perf 4530-69 ft, td 4607 ft; Faulk 4, 163.38-ac lse, Jas. Pollock sur, flow 454 bbls ¼-in, Woodbine perf 4800-56 ft, td 4877 ft; W. S. Shamburger 2-D, 500 ft out sec 40-ac unit of 57.66-ac lse, Moseley sur, pump 59 bbls, Woodbine perf 4525-4634 ft, td 4816 ft; B. A. Wells 2, 141.78-ac lse, Geo. Brewer sur, flow 362 bbls ¼-in, Woodbine perf 4772-4844 ft, td 4881 ft. Stanolind's Jeffery 2, 467 ft from n and 1232 ft from w lines 50¼-ac lse, H. F. Robinson sur, flow 351 bbls ¼-in, perf 4693-4701 ft, td 4848 ft.

Marion County: Wildcat — A. J. Vestal's Moseley 1, South David Lane sur, Tokio 2535 ft, abnd 2547 ft.

WILDCAT STARTS

Bowie County—A. L. Willis' Chapman 1, Block 1, Kosminsky subdivision E. H. Tarrant sur, mat. (Paluxy test). W. B. Hinton et al's Lumpkin 1, (715-ac tr) W. Byers sur, mat.

Wood County—Arthur Klemm et al's J. F. Ballard 1, 660 ft out sec 690-ac tr, W. T. Marshall sur, near Golden, cem surface pipe.

Seek Potential Change For Ector County Pool

A plan for revising the method of taking potential tests on wells in the Foster pool, Ector County, was presented to the Texas Railroad Commission at a hearing last week.

The field now is subject to the regular statewide 24-hour potential test rule, and Atlantic Refining Company requested that a special rule be fixed for this field whereby the last 3 hours of a 6-hour test would be multiplied by 8 to arrive at the 24-hour potential, regardless of whether the well be flowing, pumping or on gas-lift. Gas-lift potential tests are not permitted in this field as a basis for setting the allowable.

Other operators attending the hearing did not favor a change in the present 24-hour rule, but there was no serious objection to a rule that would permit taking potentials in this field by gas-lift.

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Southwest Texas

South Caesar Carrizo Well Flows 165 Barrels Oil

Recompletion of discovery well of South Caesar field, Bee County, as a low gas/oil ratio producer has set off a boom along the Wilcox trend which is expected to be the high spot of development along the Lower Gulf Coast for some time.

Bee County: T. B. Slick's Grissom 1-A flowed 165 bbls 42.7 gr oil, 7/64-in ch, 1150 pounds equalized pressure, gas/oil ratio 500-1, perf 6552-57 ft. This is first Carrizo sand oil in area.

Jim Wells County: Shell's Seeligson 1, 1¼ mi sw Seeligson field, flowed 145 bbls of 40.5-gr oil, 7/64-in ch, 1190 lbs tp, 1260 lbs cp, low gas/oil ratio, sand 5942-98 ft, dr to 6020 ft, set 5½ at 5965 ft; extends field.

San Patricio County: Seaboard's Smith 4, Odem field, perforated 6750-59 ft, flow 95 bbls 37.3-gr oil ⅛-in choke, 925 lbs tubing 2050 lbs casing pressures, gas-oil ratio 1056/1; opens new sand.

Hidalgo County: Arkansas Fuel's J. W. Heard 1, 4 miles southeast Nichols field, perforated 6020-27 ft in Frio. Flowed estimated 12 bbls 55-gr distillate and 500,000 cubic ft gas per day 5/32-in choke, 2200 lbs working pressure, opening new field.

COMPLETIONS

Bastrop County: Lentz—Furlong & Thompson's Lentz 4, J. G. Lentz sur, abnd 2747 ft.

Bastrop County: Wildcat—Banks L. Miller, Tr.'s Williams 1, C. C. Smith sur, 2 mi ne Hilbig fld, abnd 3021 ft.

Bee County: Wildcat—W. Earl Rowe's Stubenthal 1, P. O'Boyle sur, 2½ mi nw Skidmore, abnd 5010 ft, top Vicksburg 4340 ft.

Caldwell County: Buchanan—Joe Dixon & W. H. Appell's Midlin 1, C. M. Cannon sur, pump 98 bbls, acidized 2000 gals, Dale lime 1894 ft, td 2008 ft.

Duval County: Wildcat—Bridwell Oil Co.'s Parr 1-B, sec 64, J. Poitevent sur 276, 9 mi w San Diego, abnd 4465 ft.

Jackson County: Ganado—Texas Co.'s Mtg. Lnd. & Inv. Co. 7, sec 3, Morris & Cummings sur, flow 165.60 bbls 37.2-gr oil, ⅛-in chk, 1010 lbs tp, cas sealed, gas-oil ratio 795/1, perf 6420-30 ft, sand 6420 ft, td 6686 ft.

Jackson County: Lolita—Magnolia's Gordin 12, blk 12, I&GN 3, flow 148.88 bbls 24.6-gr, 7/64-in chk, 550 lbs tp, 825 lbs cp, gas-oil ration 271/1, perf 5218-22 ft, sand 5218 ft, td 5225 ft.

Jackson County: Maurbro—Humble's Bonnet 3, blk 14, B. J. White lge, flow 112 bbls 24-gr oil, ⅛-in chk, 550 lbs tp, 600 lbs cp, gas-oil ratio 150/1, sand 5217 ft, td 5229 ft. Humble's Gayle 1, A. M. Clarge lge, junked 731 ft; Mauritz Bros. 8-B, blk 10, B. J. White lge, flow 327 bbls 24.6-gr oil, ¼-in chk, 250 lbs tp, 280 lbs cp, gas/oil ratio 220/1, sand 5228 ft.

Jackson County: North La Ward—Magnolia's Gordin Est 13, lot 3, I&GN 1, flow 154.32 bbls 24.6-gr oil, 7/64-in chk, 700 lbs tp, 1100 lbs cp, gas-oil ratio 292/1, perf 5221-26 ft, sand 5221 ft, td 5226 ft.

Jackson County: Wildcat—S. W. Richardson's Fenner 1, R. Musquez gr, 2¼-mi n Lolita townsite, abnd 6025 ft.

Jackson County: West Ganado — Pure's Wiese 2, W. Menefee sur, flow 54.40 bbls 25.5-gr oil, 8/64-in chk, 1400 lbs tp, 300 lbs cp, gas-oil ratio 4129/1, perf 4734-50 ft, sand 4734 ft, td 6262 ft, pb td 4775 ft.

Jim Hogg County: Colorado — Humble's King Ranch-Colorado 55-B, Las Moritas gr, flow 194.58 bbls 46.5-gr oil, 3/16-in chk, 325 lbs tp, 700 lbs cp, gas-oil ratio 180/1, sand 2944 ft, td 2957 ft.

Jim Wells County: Ben Bolt—Bridwell Oil Co.'s Hoffman 1-E, La Trinidad gr, 2,200,000 gas & 40 bbls 54-gr dist, 3/16-in chk, perf 5174-77 ft, td 5515 ft.

Jim Wells County: La Gloria—Magnolia's Burdett 1, lot 8, blk 11, flow 178.22 bbls 39.4-groil, 3/16-in chk, 475 lbs tp, 1675 lbs cp, gas/oil ratio 420/1, perf 6697-6701 ft, sand 6696 ft, td 6702 ft.

Jim Wells County: Seeligson—Transwestern Oil Co.'s Seeligson et al 1-A, sec 65, W. Millican sur, flow 89 bbls 39.9-gr oil, 5/64-in chk, 1150 lbs tp, 1350 lbs cp, perf 5950-55 ft, td 5995 ft.

Kleberg County: Stratton—Humble's King Ranch-Paso Ancho 6, Paso Ancho de Abajo gr, flow 120.34 bbls 45-gr oil, ⅛-in chk, 875 lbs tp, 1100 lbs cp, gas/oil ratio 690/1, perf 6480-6500 ft, sand 6480 ft, td 6676 ft.

Live Oak County: Oakville — Henderson Coquat's New Est 1, McGloin sur, flow 65 bbls, 3/16-in chk, 80 lbs tp, 325 lbs cp, perf 2943-45 ft, sand 2738 ft.

McMullen County: South Campana — Argo Oil Corp.'s Edrington Est 7-I, AB&M 61, flow 121.49 bbls, open tubing, 400 lbs cp, gas/oil ratio 300/1, Pettus sand 3033-48 ft, td 3048 ft.

Medina County: Chicon Lake—H. Wagner's Medina Farms 4-C, lot 3-A, blk 3, pump 5 bbls 27-gr oil, crevice 133-35 ft, td 137 ft.

Nueces County: Agua Dulce — Richardson Petroleum Co.'s Knight & Jackson 6, sec 184, F. Z. Bishop Subd of Brayton tr, flow 179 bbls 42.2-gr oil, ⅛-in chk, 1250 lbs tp, 1400 lbs cp, gas/oil ratio 790/1, perf 7095-7119 ft, sand 7070 ft, td 7145 ft. Richardson Pet. Co.'s McCoy 9, sh A-2, Chapman Partition, flow 82.86 bbls 42.4-gr oil, ⅛-in chk, 675 lbs tp, 1300 lbs cp, gas/oil ratio 1931/1, perf 6440-67 ft, sand 6440 ft, td 6923 ft.

Nueces County: South Clara Driscoll—Texas Conservative Oil Co.'s Huie 9, sec 127, flow 24.3 bbls, open tbg, 50 lbs tp, 475 lbs cp, gas/oil ratio 396/1, perf 5437-43 ft, td 5447 ft.

Nueces County: Stratton—Chicago Corp.'s Wardner, Tr. 33, sec 3, gas-distillate, perf 6514-20 ft, 6538-80 ft & 6640-60 ft, sand 6353 ft, td 6773 ft. Gulf Plains Corp.'s Texon Royalty Co. 1-B, sec 1, gas-distillate, perf 6272-6300 ft, td 7000 ft. Southern Minerals Corp.'s Stratton-Community 35, sec 199, flow 87.6 bbls 42.2-gr oil, 7/64-in chk, 850 lbs tp, 1175 lbs cp, gas/oil ratio 550/1, perf 6478-88 ft, td 6679 ft.

Refugio County: Wildcat—Hewit & Dougherty's Rooke 5-A, blk 2, Subd C, Aldrete gr, 2 mi w La Rosa fld, abnd 7016 ft.

Victoria County: East Placedo—Walter L. Goldston's MP 1, E. Benavides sur, flow 107.2 bbls 39.3-gr oil, 5/64-in chk, 1500 lbs tp, 1900 lbs cp, perf 6865-67 ft, td 6891 ft. Magnolia's Henderson & Pickering 6, Rupley sur, flow 132.4-bbls, ⅛-in chk, 725 lbs tp, 450 lbs cp, perf 6028-32 ft, sand 6025 ft, td 6033 ft.

Victoria County: North Keeran—Barnsdall Oil Co.'s Keeran Ranch 3-A, Martin de Leon gr, abnd 7113 ft.

Webb County: Wildcat—O. W. Killam's Garcia et al 1, sec 608, 6½ mi s Mirando City, abnd 3465 ft.

Willacy County: Willamar—Pan American's Elliot 1, sh 13, San Juan de Carricitos gr, flw 124.3 bbls, 5/32-in chk, 500 lbs tp, cas sealed, perf 7875-7913 ft, sand 7876 ft, td 7970 ft.

Zapata County: Glen—Tom R. Banks & Glen Harroun's Hinnant 1, sur 307, flow 412 bbls 22.1-gr oil, ¼-in chk, 180 lbs tp, gas/oil ratio 350/1, oil sand 2162-68 ft, td 2172 ft.

OLD WELL WORKED OVER

Duval County: Government Wells — Sun's Wiederkehr 76-A, orig abnd 2956 ft, worked over, flow 107 bbls 24.2-gr oil, open tbg, gas/oil ratio 140/1, sand 1795-1815 ft, td 2956 ft, pb td 1815 ft.

WILDCAT STARTS

Bee County—Dirks Bros.' Dugat Est 1-B, J. Poitevent sur 1, 2 mi w Dirks field, lcn 4000-ft test.

Hidalgo County — McCollum Oil Co.'s Sweeney Est 1, El Gate gr, 4½ mi s Donna, lcn 8500-ft test.

Jim Wells County—Humble's Muil 1, lot 88, R. King sur 60, 3 mi sw Southern Min's Stillwell 2, 7½ mi sw Alice, lcn 8000-ft test.

LaSalle County—Navarro Oil Co.'s Talbert 1, H&GN 149, 3980 ft s & 1127 ft w Trinity's Storey et al 1, 9 mi s Los Angeles, lcn 5500-ft test.

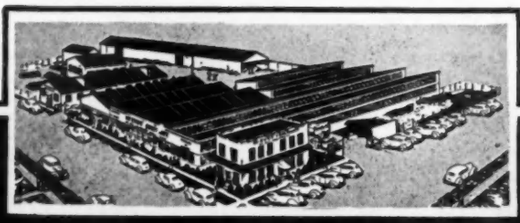
Starr County—Otto Woods' Kelsey-Bass 1-A, blk 9, F. Rodriquez Porc 86, 7 mi ne Rio Grande City, lcn 2100-ft test.

Victoria County—Transwestern Oil Co.'s McFaddin 1-B, A. L. Fernet gr, 3 mi nw McFaddin, lcn 6500-ft test.

Webb County—Mills Bennett's Benavides 1, blk 10, sec 2, J. Cuellar gr, 3 mi n Bruni, lcn. O. W. Killam's Benavides et al 1, sur 2254, 4 mi ne Oilton, lcn 3500-ft test.

Texas Drilling Permits

The Texas Railroad Commission last week approved permits for 29 wells, a decline of 24 as compared with the week before. One was in the East Texas field and two for the remainder of East Central Texas. Nine locations received approval in Southwest Texas, seven in the Gulf Coast, one in West Texas and seven in West Central Texas; two in North Texas and none in the Panhandle.



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Texas Gulf Coast

Esperson Area Wildcat Indicates New Flank Pay

Oil production established at South Anahuac; wildcat near Esperson indicates new production; producer extends Oyster Bayou northwest.

Chambers County: Rowan Drilling Co.'s Land 1, South Anahuac (Ash Point) area, flowed oil and salt water from perforations at 9045-47 ft, the rate being 8 bbls fluid hr through 10/64-in choke, 20 percent salt water.

Oyster Bayou: Sun extended Oyster Bayou northwest with completion of Jackson 9 for 749 bbls on ¼-in choke from perforations 8260-8300 ft in Frio, tubing pressure 1375, casing 2300, gor 670-1. Sand was topped at 8260 ft, total depth 8373 ft in sand.

Harris County: Atlantic is slowly drilling ahead in Cohn 1 on west side

Esperson field, Liberty County, the well being across the creek in Harris County. This well has threatened to blow out several times when sand sections were encountered at 8526 ft, 8608-37 ft, 8770-99 ft, 8814-19 ft. A thicker sand is expected to be picked up around 9000 ft.

Montgomery County: Superior Oil Co. is making first tests in McWhorter 1-D, south side Lake Creek Wilcox field. First perforations were made at 9278-98 ft, flowing 18 bbls hourly 45-gr oil, 60 percent being salt water. Perforations were squeezed and a second set made at 9278-93 ft. Superior's South Texas Development Co. 1, east outpost, is drilling below 10,500 ft after making tests in 7 or 8 sands, none proving successful.

COMPLETIONS

Brazoria County: Old Ocean—Harrison & Abercrombie's Mueller & Moline 1, Bucholz sur, flow 403 bbls ¼-in chk, tp 580, cp 100, 36.3-gr, gor 705/1, sand 10,035 ft, td 10,994 ft.

Fort Bend County: Nash Dome—Atlantic's Groce 2, 2675 ft fr w l T. Alsberry sur, perf 4294-4312 ft, flow 180 bbls on drill-stem, ran tubing, flow 32 bbls 7/64-in chk, tp 1400, sanded up, reperf, tested salt water, abnd 6508 ft.

Galveston County: Caplen—James H. Snowden's Simpton 1, 100 ft fr s l & 240 ft fr e l 95-ac tr McKinney & Williams sur, perf 6046-66 ft, flow 72 bbls 1/16-in chk, tp 750, 35 gr, td 6300 ft.

Hardin County: Sour Lake—H. F. Baker's Sun 3, 2-ac tr S. Jackson sur, pump 12 bbls 21.6 gr, td 1860 ft.

Jefferson County: Lovell Lake—Humble's Jefferson Land Co. 25, 1465 ft fr e l & 500 ft fr s l lease, BBBC sur, top pay 7710 ft, flow 141 bbls ⅛-in chk, tp 1900, 35.7 gr, gor 2345/1, td 7720 ft.

Liberty County: Martha—Stanolind's Seaberg 1-C, 467 ft s & w ne cor 39-ac tr in W. Liberty Town Lge, abnd 8350 ft.

Matagorda County: Markham—Hamill & Smith's T. E. Hudson 3, 1135 ft fr e l & 75 ft fr n l blk 14, Henry Parker Lge, abnd 2732 ft.

Walker County: Wildcats—B. A. Farrell's Foster 1, H. Applewhite sur, 200 ft fr w l & 1760 ft fr s l, top Wilcox 5970 ft, abnd 6711 ft. J. O. Ehlinger's Frazer & Campbell 1, 330 ft fr nw l & 330 ft fr sw l of blk 35, James B. Walker sur, abnd 2500 ft.

Wharton County: Boling—Danciger's Hawes 1, S. F. Austin sur, perf 3103-13 ft, flow 292 bbls ¼-in chk, tp 225, cp 650, td 3163 ft.

Wharton County: Hillje—Texas Co.'s Stovall 1, 660 ft fr n l & 660 ft fr e l sw¼ sec 2, L. P. Ogden sur, perf 5226-31 ft, flow 80 bbls 12/64-in chk, tp 290, cp 745, gr 24.8, gor 305, td 5235 ft.

Wharton County: Withers—F. W. Michaux' Pierce Est. 8-A, 1866 ft n 62 deg e, T. Westall sur, perf 5315-30 ft, flow 171 bbls 5/32-in chk, tp 600, cp 550, 25.9 gr, gor 341/1, td 5390 ft; Pierce Est. A-12, 1866 ft n 62 e of No. 8-A, T. Westall sur, perf 5373-81 ft, flow 132 bbls 5/32-in chk, tp 425, cp 550, 25.9 gr, gor 354/1, td 5390 ft; Pierce Est. 31-A, 2799 ft s 62 w fr No. 25-A, perf 5366-73 ft, flow 160 bbls 10/64-in chk, tp 475, cp 575, 29 gr, gor 266/1, td 5388 ft; Pierce Est. 51-A, 1320 ft n 28 deg w fr se l Charles Howard sur, A-181, perf 5314-20 ft, flow 143 bbls 5/32-in chk, tp 425, cp 550, gor 468/1, 26.3 gr, td 5335 ft.

WILDCAT STARTS

Grimes County—Magnolia's Brigance 1, 4½ mi n of Navasota, 3000 ft se of nwl & 2400 ft ne sw of R. Ray sur, Wilcox test, lcn.

Matagorda County—Pure's LeTulle 1, 5½ mi se Palacios, George Wheelwright sur, 3470 ft fr sl of tr & 3965 ft fr el of tr, lcn 6000-ft test.

Louisiana Gulf Coast

Pine Prairie Extended; Bayou Sale Gets New Sand

Outpost extends production at Pine Prairie, Evangeline Parish; Humble establishes shallow production at Bayou Sale; South Catahoula Lake discovery completed on pump.

Evangeline Parish: E. J. Nicklos is testing a southwest outpost to Pine Prairie field to extend production more than 1800 ft; Reed 2 showed 28 ft oil sand at 7764-92 ft in top of Cockfield on electrical survey, in Sec. 36-3s-1w, bottomed 7815 ft. One mile south of production, L. M. Josey's Haas Estate 1 is drilling near contract depth of 8500 ft. Operator logged 48 ft salt water sand at 8072 ft, believed to be same producing on other sides of the dome.

St. Mary Parish: Humble Oil & Refining Co. has opened shallow production with Wooster B-3 producing 2 bbls 38-gr oil hourly through ⅛-in choke from perforations 4567 ft; new horizon 6000 ft above field sand; total depth 10,470 ft.

On the southeast side Charenton field, Fifteen Oil Co.'s South Coast 2 is drilling near projected depth of 10,000 ft. Well encountered some shows at 9530 ft; casing 9510 ft.

Rapides Parish: Phillips Petroleum Co. completed Eota Realty Co. 1, South Catahoula Lake prospect; field to be called Deville; on pump, making 75 bbls fluid daily, with 50 percent salt water. Perforations in the Wilcox 5150-52 ft, 14 holes. Midway topped 7014 ft. Wilcox 3962 ft, td 7068 ft.

COMPLETIONS

Assumption Parish: Wildcat—George H. Echols & J. Ray McDermott's Armelise 1, east flank Napoleonville dome, 139-12s-14e, southeast of Armelise 1 dry hole, salt 9108 ft, abnd 9131 ft in salt.

Calcasieu Parish: Vinton—Union Sulphur Co.'s Gray 2, old well worked over on southwest flank, 2350 ft s & 805 ft e of nw cor 4-11s-12w, orig comp 11-15-41, started flowing salt water, squeezed old perfs & reperf 3604-09 ft, abnd 3610 ft.

Cameron Parish: Chalkley—Shell's Hanszen 13, 1800 ft s & 620 ft w nec 29-12s-6w, flow 38 bbls gas lift, sand 8883 ft, td 8905 ft.

Iberia Parish: Vermilion Bay—Texas Co.'s State-Vermilion Bay 6-B, 14,357 ft s & 17,042 ft w se c 20-15s-6e in bay. Top salt 5758 ft, perf 10,150-170 ft, tested & squeezed, reperf 10,120-130 ft, flow 292 bbls, 9/64-in chk, tp 1450, gr 33.2, td 11,294 ft.

Jeff Davis Parish: Welch Dome—Union Sulphur's Gray 2, Unit 3, 322 ft n & 225 w

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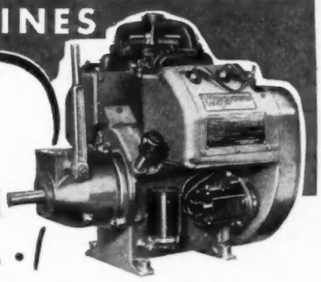

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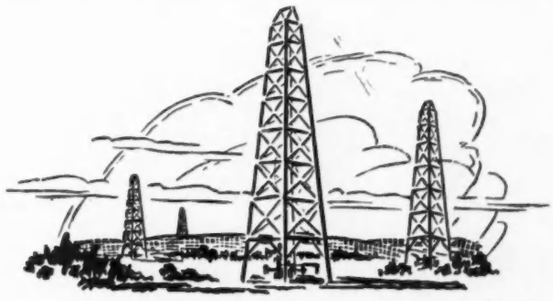

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sec sw sw 27-9s-5w, east of production, ran elec log, abnd 8790 ft.

LaFourche Parish: Golden Meadow—Bering Oil Co.'s Jambon 1, 680 ft s & 491 e nec 21-19s-22e, perf 5430-38 ft, tested some oil, plugged back and reperf 5141-47 ft, flow 1,000,000 gas, squeezed and reperf 5144-52 ft, flow 125 bbls 10/64-in chk, tp 450.

LaFourche Parish: Lake Long—Fohs Oil Co.'s State-Lake Long 16, 11,994 ft n & 1179 w sec 77-17s-19e, abnd 10,261 ft.

Plaquemines Parish: Grand Bay — Gulf's State QQ 14, 2929 ft e alg n l of sec 5 fr nw cor & 1955 ft s at ra in 5-20s-19e, perf 10,000-05 ft, show small amt oil, plugged back & reperf 8740-50 ft, flow 358 bbls 5/32-in chk, tp 1450, td 10,041 ft.

Rapides Parish: Deville—M. H. Marr & Phillips Petroleum Co.'s Eota Realty Co. 1, 660 ft s & w c ne 14-4n-3e, perf 5150-52 ft, pump 42 bbls, td 7086 ft.

St. Mary Parish: Bateman Lake — Texas Co.'s Woodward-Kemper-Longmire 1, 1901 ft s & 2127 ft w nec 24-16s-12e, perf 10,030-35 ft, 2⅛ million gas 10/64-in chk, tp 1875, td 10,990 ft.

Vermilion Parish: South Gueydan—Pure's Alliance 11, 3309 ft n & 2104 w se 33-11s-1w, perf 9850-92 ft, flow 308 bbls 10/64-in chk, tp 1590, cp 770, gr 34.4, td 9955 ft.

WILDCAT STARTS

Avoyelles Parish—Placid Oil Co.'s Thompson & Katz 1, 660 ft n & e of swc 4-2n-5e, Penrod Drilling Co., Dallas, contractor, lcn.

Iberia Parish—Amerada's Williams 1, 660 ft n & 660 w sec 19-12s-11e, Loffland Brothers, contractor, lcn.

St. Mary Parish—Texas Co.'s State-Rabbit Island 3-340, being s 1 deg 47 min e 34,817 ft fr U.S.C.G.S. monument "Island" in Atchafalya Bay, lcn.

Louisiana Permits

Thirty drilling permits were issued last week by the Louisiana Conservation Commission of which 11 were in North Louisiana, divided among the following parishes: Bossier, 1; Caddo, 1; Caldwell, 2; and La Salle, 7. The 19 in South Louisiana were in the following parishes: Avoyelles, 1; Calcasieu, 1; Cameron, 3; Evangeline, 1; Jefferson, 1; Livingston, 1; Plaquemines, 4; St. Charles, 3; St. Martin, 1; Vermilion, 2; West Baton Rouge, 1.

North Louisiana

Third Haynesville Pettit Producer Completed

Third Pettie oil producer for Haynesville; two 11,000-ft tests in Claiborne Parish drill ahead after shows.

Haynesville: Blackwell Oil and Gas Co.'s Milner 1, 22-23n-8w, Claiborne Parish, completed from Pettit last week to make the third oil producer from that horizon for that field, flowing 327 bbls of oil in 6 hours after perforations 5355-5428 ft; total depth 5455 ft. It is a north offset to the discovery Pettit well of the field.

Claiborne Deep Tests: Union Producing Co.'s McDonald 1, C SW 13-21n-5w, second 11,000-ft Smackover lime test in North Lisbon, showed 38 joints of 58-gr distillate and five joints of clear water that had been pumped into the hole in a 2-hour and 16 minutes drill stem test in Smackover lime from 11,872-80 ft, with ¼-in choke on bottom and ⅜-in on top. The test then cored ahead and later was drilling at 11,926 ft, apparently seeking Permian salt. It continues to set new depth records for North Louisiana.

Catahoula Parish: Carter Oil Co.'s Catahoula A-1, C SW NW 5-6n-4e, swabbed 18 bbls of fluid per hour, only 3 percent oil, after perforating at 4084-89 ft, total depth is 5490 ft and plugged back to 4303 ft, elevation of 60 ft, Wilcox 2750 ft, Cockfield 1317, Cane River 2614 ft and Midway 5370 ft.

COMPLETIONS

Bossier Parish: Bellevue—T. G. Shaw et al's Kendrick 1, ne sw 22-19n-11w, abnd 420 ft. (Nacatoch).

Caddo Parish: Hosston—Clemons, Swartz & Clemons', Arkansas Fuel 5, 26-21n-16w, pump 3 bbls, 2258 ft. C. L. Bland's Stiles 4, Sec 17-21n-16w, pump 15, 1007 ft.

Caddo Parish: Pine Island—A. R. Hancock's Standard A-1, 6-21n-15w, abnd 1766 ft. J. C. Prine, Handschumacher 1, ne sw 18-21n-15w, pump 25 bbls 1670 ft.

Catahoula Parish: Wildcat—N. H. Wheleess et al's La. Delta D-1 sw se 5-3n-5e, elev 52 ft, Wilcox 4785 ft, abnd 8060 ft.

Claiborne Parish: Haynesville — Blackwell O&G Co.'s Milner 1, 22-23n-8w, flow 327 bbls 6 hrs, perf 5355-5428 ft, Pettit, td 5455 ft.

LaSalle Parish: Little Creek—H. L. Hunt's Goodpine F-110, nw ne 32-9n-2e, perf 2432-35 ft, pump 146 bbls & 30 bbls water, td 2934 ft.

LaSalle Parish: Nebo—H. L. Hunt's Goodpine C-7, sw ne 29-8n-3e, abnd 3926 ft; Goodpine F-71, nw nw 22-7n-3e, perf 4020-26 ft, pump 121 bbls oil & 14 water, td 4120 ft. T. L. James, Graham 2, 40-7n-3e, perf 3688-98 ft, flow 150 bbls, td 4111 ft. Placid Oil Co.'s Goodpine F-70, nw nw 24-7n-3e, abnd 4075 ft.

LaSalle Parish: South Olla—Placid Oil Co.'s Goodpine B-11, se se 26-9n-2e, abnd 2934 ft; Tremont A-19, nw sw 26-9n-2e, perf 2535-40 ft, pump 82 bbls oil & 28 water, td 3594 ft.

Sabine Parish: Wildcat — J. H. Trotter's Lake Charles Trust Co. 1, se se 5-5n-12w, abnd 2535 ft.

WILDCAT STARTS

Bossier Parish—Ward Delaney et al's Werner 1, sw ne 28-18n-1w, rig, 6000-ft test.

Caldwell Parish—Mudge Oil Co.'s International 2, sw 6-11n-4e, rig.

Arkansas

Twelve Tests Drilling In New Midway Field

Twelve tests driling at Midway. First commercial well at Dorcheat in lower Marine makes distillate; rigs stacked at McKamie.

Midway: Twelve tests were drilling in the new Midway field, La Fayette County. Leasing continued to spread

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in La Fayette, Hempstead, Nevada and Miller Counties, Arkansas. In Bowie County, Texas, as a result of the trend from Midway, two new Smackover lime tests were planned immediately and one Paluxy sand location was staked.

Dorcheat: First commercial well to be completed in the Lower Marine (Cotton Valley) at Dorcheat, Columbia County, was Atlantic Refining Co.'s Pinewoods B-1, C NE NE 16-18-22, gauging 7 barrels of 65.5 gr water-white distillate per hour through 10/64-in choke, with gas/oil ratio 15,000 to 1, after perforations 7860-75 ft. Later the flow increased and the well was choked to 200 bbls daily and gas/oil ratio was lowered to 14,000 to 1 with tubing pressure 2600 and casing pressure, 2500 pounds.

McKamie: Due to the federal government's 640-acre space rule for gas fields in which McKamie falls, little drilling is anticipated for the Smackover lime and Carter Oil Co. rigs there have been stacked. Carter is re-testing Cornelius Unit 1, Section 30-17-23, in the Cotton Valley at 7255-65 ft where the well several weeks ago flowed 15 to 20 barrels of oil hourly for 15 hours and then was choked off. Of course should this horizon prove productive of oil, drilling would be revived there. Atlantic Refining Co.'s Bodcaw 9, C NE 33-17-23, that apparently missed Smackover lime production and cored and drilled to 9623 ft is preparing to run formation tester at that level.

WILDCAT START

Nevada County: Troy—Berry Asphalt Co.'s McRae 1, ne sw 4-14-20, pump 35 bbls 1208 ft. (Nacatoch).

Mississippi

Adams County Well Has Slight Oil Show

Adams County wildcat shows oil; Pickens-Sharpsburg field disappoints.

Adams County: Roy L. Fisher and Phillips Petroleum Co.'s Lamblin 1, 1200 ft south and 1250 east NWC 36-8n-2w, Adams County, near Natchez, was shut down last week at 7104 ft while operators were deciding whether to set casing for production test of an oil showing in 7 feet of sand at 5690-97 ft. Top of Wilcox was 3949 ft, contract 7000 ft. The test is in the southeast Olla trend from Wilcox production in Louisiana.

Pickens-Sharpsburg: The new Pickens-Sharpsburg field, Madison County, opened in December by C. L. Morgan's well in Section 14-11n-3e, which has been making considerable salt water, proved more disappointing last week as Carter Oil Co. abandoned its test at C SE NE 14-11n-3e. Phillips Petroleum Co. is standardizing its first offset there, Gene 1, 660 ft north and 1980 ft west SEC 4-11n-3e, that showed 2470 ft of oil and 180 ft of salt water in drill-stem test at 4840-54 ft, later set casing and swabbed but refused to flow. Oil/water contact was determined at 4859 ft, elevation 222 ft. Top of Eutaw (Blossom) was 4812 ft and Wilburn 4849 ft.

COMPLETIONS

Madison County: Pickens-Sharpsburg—Carter Oil Co.'s Cooper 1, c se ne 14-11n-3e, abnd 5850 ft.

Yazoo County: Tinsley Dome—E. C. Johnston, Martin 5, nw sw 1-9n-3w, elev 340 ft, Woodruff 4975-96 ft, pump 300 bbls, td 4996 ft.

Marshall County—W. B. Fly, Tucker 1, c ne ne 20-5s-4w, spd, abnd.

WILDCAT START

Scott County—Carter Oil Co.'s Newell 1, nw se 32-8n-7e, mat.

Michigan

Grand Rapids Deep Test Finds St. Peter Dry

First drilling spurt since January 1 follows partial local approval of drilling programs on a 20-acre deferred drilling plan. First deep test in Grand Rapids field fails.

Deep Test: Producers Committee's Riddering 1, Section 30-7n-12w, Kent County, abandoned at 5222 ft, 100 ft in St. Peter sand. First test in Grand Rapids (1800-ft Traverse production) field carried to St. Peter.

Wildcats: Continental Oil Co.'s Bonnett 1, Section 8-2s-6w, 12 miles northwest of same company's Turner 1 discovery (10½ million gas in Traverse at 1609 ft) drilled Traverse lime dry and may be carried deeper.

Associated & Southwest's Blackmer 1, NE SE NE 15-8n-14w, Ottawa County, logged Traverse 1880 ft, and bottomed for test at 1881 ft with 600 ft of oil natural. Wildcat is seven miles northwest of Grand Rapids field and most promising for pool opener in shallow area for months.

COMPLETIONS

Allegan County: Hopkins—Frank Vahue's Stone 1, se ne nw 7-3n-12w, abnd in Traverse 1645 ft.

Allegan County: Salem—Cook & Wilson's Groothers 1, ne ne sw 28-4n-13w, abnd in Traverse 1654 ft.

Arenac County: Adams—Rayburn & Major's Collins 3, ne nw ne 22-19n-3e, abnd in Dundee 3041 ft.

Arenac County: Deep River—W. E. Ross' Mutch 2, nw nw se 17-19n-4e, Berea sand, 6.4 million gas, 1510 ft.

Arenac County: Wildcat—Socony-Vacuum's Thoms 1, c e½ ne se 8-18n-4e, Dundee lime 2723 ft, abnd 2928 ft.

Clare County: Winterfield—Pure's Ricker 2, c e½ sw ne 29-20n-6w, Dundee 3753-60 ft, 600 bbls after acid, td 3766 ft. Turner Petroleum Corp.'s Tope 1, c w½ ne sw 33-20n-6w, Dundee 3750 ft, abnd 3771 ft.

Gladwin County: Buckeye—T. F. Caldwell's Emott 1, nw se nw 21-18n-1e, Dundee 3562-3639 ft, pump 21 bbls after acid, td 3650 ft.

Kent County: Grand Rapids—Lucas & Wade's McKay 1, ne sw sw 19-7n-12w, Traverse 1932 ft, acid 100 bbls, td 1947 ft. Producers Committee's Riddering 1, c e½ se se 30-7n-12w, elev 738 ft, Dundee 2217 ft, St. Peter 5122 ft, abnd 5222 ft.

Midland County: Wildcat—Sun's McNett 1, c e½ ne se 15-15n-1w, abnd 1350 ft.

Osceola County: Reed City—Ohio's Cooper-Ryan 1, c n½ ne sw 29-18n-10w, Monroe 3576 ft, pump and flow 60 bbls after acid, td 3598 ft.

Roscommon County: Roscommon—Ohio's State A3, n½ nw se 33-21n-3w, Traverse 3300-47 ft, flow 141 bbls 1st hr, td 3349 ft. Pure's State B3, n½ sw nw 34-21n-3w, flow 138 bbls first hr, td 3354 ft, Traverse.

Oceana County: Wildcat—E. B. Strom's Trust Co. 1, e½ ne sw, 1-16n-17w, abnd 1617 ft.

WILDCAT STARTS

Gratiot County—Chartiers Oil Co.'s Anderson 1, se ne sw 31-12n-3w, dr.

Lake County—Ashby Drilling Co.'s Castlerbar 1, c nw nw 29-17n-11w, dr.

Ottawa County—Spencer Cook's Vinkemulder 1, nw ne sw 22-6n-15w, rig.

California

Orange County Wildcat Promises Oil Producer

Fresno County outpost fails; one oil test abandoned in Kern County while gas test expects completion; prospects favorable for well in Orange County.

Fresno County: A northwest outpost in recently discovered Jacalitos Hills area is being abandoned by Wilshire Annex Oil Co. in 26-21-15, with bottom at 4072 ft in hard siltstone, Temblor 3980 ft, top oil sand 4009 ft, swabbing

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recovered small amount oil, mud and emulsion before swabbing dry.

Kern County: A. N. Macrate & Son's Haberfelde 1, McClung-Greeley area, abandoned at 12,035 ft. Top of lower Stevens placed at 8090 ft and 11 ft of gray sand 8110-8122 ft, Olcese, 11,180 ft, barren Vedder 11,950 ft.

Texas Co. is expected to complete a commercial gas producer in Bowerbank 4-23 wildcat, Sec. 23-29-24, Bowerbank, Buttonwillow area, which was taken to 12,144 ft and redrilled to 4945 ft where it is bottomed in sand and shale.

Orange County: Texas Co.'s Spencer 1 wildcat, Sec. 1-4-11, Buena Park-Anaheim area, bottomed at 9660 ft obtained salt water and some 16-gr oil from perforated interval 9250-9300 ft and flowed heavy oil intermittently over a 10-hour period from 50-ft perforated interval starting at 8900 ft.

COMPLETIONS

Fresno County: Kettleman Hills North Dome—Standard's 8-21Q, 625 ft n 526 ft e swc 21-22-18, flow 1107 bbls 56/64-in bean 240/810 lbs, perf 7310-7400, 7450-7490, 7535-7590, 7830-7904 ft, td 7905 ft.

Kern County: Buena Vista Hills—Standard's 73-27 B, 1476 ft s 1479 e nwc 27-31-23, pump 50 bbls 175 ft, perf 3069 ft, Mulinia 2485 ft, Wilhelm 2592 ft, td 3077 ft.

Kern County: Edison—Monterey Exploration Co.'s Nozu 1, 330 ft s 330 w nec 22-30-29, pump 10 bbls, 147 ft perf 2928 ft, Schist 3130 ft, td 3136 ft.

Kern County: Kern River—National Oil Co.'s No. 28, 935 ft n 826 e swc ne sw 20-28-26, pump 15 bbls, perf 780-790, 850-930 ft, td 990 ft.

Kern County: Midway-Sunset—Chansler Canfield-Midway Oil Co.'s Govt. 15-35, 173 ft n 1209 w sec 35-31-22, pump 44 bbls, 148 ft perf 2700 ft, td 2853 ft.

Kern County: Union Avenue—Hancock's Roberts 4, 340 ft n 340 e c se 6-30-28, pump 50 bbls, perf 5020-5035 ft, td 5377 ft.

Los Angeles County: Del Valle—R. E. Havenstrite's Liebhart 1, 1593 ft n 342 e swc 15-4-17, flow 129 bbls, ½-in bean, perf 7011-7042, 7070-7096 ft, tar sand 5910, Sherman 5940, Del Valle 6645 ft, td 7255 ft. Herley-Kelley's Videgain 2, 337 ft s 957 e w¼ c 17-4-17, pump 215 bbls, 48 ft perf 5950 ft, Jasper 5903 ft, td 5976 ft.

Los Angeles County: Wilmington—Barnhart-Morrow Cons.' Spring 1, 811 ft e c l Lomita Blvd. from c l Figueroa, thence 120 ft n at r/a, pump 130 bbls, perf 3185-3237, 3267-3367, 3557-3717 ft, td 3717 ft. Lee S. Davis, Davis 3, 506 ft n 103 w c l M & Ravenna, pump 200 bbls, perf 3045-3135, 3189-3320, 3485-3703 ft, td 3705 ft. Petromont Oil Co.'s Wilmington 6, 465 ft n 130 e c l L & Bayview, pump 190 bbls, perf 3041-3160, 3198-3290, 3500-3600, 3670-3725 ft, td 3735 ft.

Santa Barbara County: Cat Canyon—Standard's Los Flores 4, 2920 ft s 990 w n¼ c 27-9-33, pump 531 bbls, 374 ft perf 6144 ft, Miocene 4970 ft, td 6144 ft.

Santa Barbara County: Santa Maria Valley—Bel-Air Oil Co.'s Twitchell 2, 200 ft s 200 w n¼ c ne 35-10-34, flow 2000 bbls, 530 ft perf 5355 ft, td 5361 ft.

Ventura County: Rincon—Chansler-Canfield, Midway Oil Co.'s Hobson C-3, 50 ft s 520 w n¼ c 17-3-24, flow 139 bbls 48/64-in bean, 1047 ft perf 10,074 ft, oil sand 2970-2980 ft, td 10,505 ft, redrilled to 10,075 ft.

OLD WELL RECOMPLETED

Los Angeles County: Wilmington—General's Harbor Community 19, 330 ft s c l San Diego from c/l Ocean, thence 57 ft e, pump 75 bbls, otd 4063 ft, pb 3464 ft.

WILDCAT STARTS

Kern County—Dyer Creek Oil Co.'s No. 1, 2-26-27, rig. Shell's Smith-Cairns 3, 11-26-27, rig. Western Minerals Co.'s USA 37-25, 25-11-23, lcn. Southwest Midway area.

Tulare County—Continental's Pixley Comm. 1, 9-23-25, lcn.

Rocky Mountain Area

Montana

COMPLETIONS

Phillips County—Montana Dakota Utilities Co.'s Wild 670, c ne nw 19-31n-34e, rotary, Bowdin field, 5.17 ft gas, 220 lbs pressure, 850 ft.

Toole County—Kevin-Sunburst, J. H. Agen's Goeddertz 18, c s l ne sw 23-35n-3w, cable tools, 7 bbls pumping, 1676-81 ft Madison. Montana Exploration Co.'s Lashbaugh 1, sw ne nw 34-35n-2w, cable tools, abnd 1610 ft. Nepstead et al's Haugen 2, c s l sw sw 2-35n-3w, 300 bbls pump, 1846 ft td.

Colorado

COMPLETIONS

Cheyenne County—O. E. Torrey's Whitson 1, nw nw se 12-13s-49w, rotary, abnd 300 ft sulfur water, Marmaton lime 4812-4819 ft td.

Kiowa County—Stanolind's Snell 1, c se sw 7-20s-41w, rotary, abnd in Arbuckle 5994 ft, elev 3853 ft.

Wyoming

COMPLETIONS

Carbon County—Ohio's Diamond Cattle 3, c s l ne se 27-20n-78w, Rock River, rotary, pump 205 bbls, 3517 ft Dakota.

Sweetwater County — Sinclair-Wyoming's Hughes 8, c w l sw sw 2-26n-90w, rotary, Lost Soldier, 247 bbls, pump, td 4084 ft.

Eastern States

New York

COMPLETIONS

Allegany County—Ebenezer Oil Co., Herrick farm, Bolivar, 5 bbls, Richburg, 1342 ft. South Bolivar Oil Co., McKelvey farm, Bolivar, 5 bbls, Richburg, 1366 ft. V. V. V. Franchot, Murphy farm, Bolivar, 6 bbls, Richburg, 1379 ft. A. L. Shaner, Parker farm, Bolivar, 4 bbls, Richburg 1388 ft. Ebenezer Oil Co., Ketchum farm, Scio, 6 bbls, Richburg, 1249 ft. Wm. Taylor Est., Coyle farm, Alma, 7 bbls, Richburg, 1276 ft. O. D. Underwood et al, McDivitt farm, Bolivar, 6 bbls, Richburg, 1334 ft. McEbenwood Oil Co., Lynch farm, Andover, 7 bbls, Penny, 1370 ft. Ed. McLaughlin, Briggs farm, Independence, 4 bbls, Fulmer, 1335 ft. New York Oil Co., Brown farm, Bolivar, 6 bbls, Waugh-Porter, 1432 ft. Sloan & Zook, Schram farm, Bolivar, 6 bbls, Richburg, 1384 ft. Messer Oil Corp.,

BANKRUPT SALE

At the office of the Referee in Bankruptcy, Room 372 Federal Building, Dallas, Texas, at 11:00 o'clock on Wednesday, February 25, 1942, will be sold at public auction producing oil and gas leases including equipment in Winkler, Ward, Houston, Howard, Marion and Gregg Counties, Texas, and Lea County, New Mexico; two producing oil and gas payments in Winkler County, Texas, and Lea County, New Mexico. Office furniture and equipment and various non-producing leases and royalties in Illinois, Louisiana, Arkansas and Texas.

Signed: Lewis W. McNaughton, Trustee in Bankruptcy of the Illinois Oil Company, Bankrupt. 1000 Continental Bldg., Dallas, Texas. Telephone 1667. Full details on file with Referee in Bankruptcy in Dallas; also at office of the Illinois Oil Company, 1514 Santa Fe Building, Dallas, Texas.

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INTAKE WELLS

Vosburg Oil Co., Green farm, Bolivar, Richburg, 1340 ft. Messer Oil Co., Vosburg farm, Bolivar, Richburg, 1362 ft. South Bolivar Oil Co., McKelvey farm, Bolivar, Richburg, 1330 ft. W. J. Richardson, Gadsby farm, Bolivar, Richburg, 1442 ft. V. V. V. Franchot, Emerson farm, Scio, Richburg, 1149 ft. Bradley Prod. Corp., Rolls farm, Alma, Richburg, 1339 ft. Otsquago Oil Corp., Pike farm, Alma, Richburg, 1431 ft. Bradley Prod. Corp., Fitz-Carrol farm, Bolivar, Richburg, 1418 ft. Marsh Oil Co., Fay farm, Bolivar, Richburg, 1426 ft. Rico Oil Co., Alger farm, Scio, Scio sand, 753 ft. Bliven Hill Oil Co., McEwen-Norton farm, Amity, Scio, 853 ft. H. W. Patterson et al, Ockerman farm, Amity, Scio, 720 ft. McEbenwood Oil Co., Lynch farm, Andover, Penny, 1370 ft.

Ohio

COMPLETIONS

Athens County—Bern O. & G. Co., Kenny 2, dry, 1143 ft, Snider et al, Pennybecker 2, abnd 1102 ft.

Auglaize County—N. E. Masters, Miller 1, abnd 1434 ft.

Fairfield County—City Natural, Vernon Dupler 1, 0.12 gas, 2509 ft.

Holmes County—Ohio Fuel, Hall 1, abnd 330 ft.

Jackson County—Fisher Gas Co., Fisher 1, 13.52 gas, 5102 ft.

Kanawha County—Columbian Carbon Co., Jones 1, 1.34 gas, 5136 ft.

Knox County—Ohio Fuel, Ferenbaugh 1, abnd 3050 ft.

Lewis County—Hope Natural, Woofter 1, 0.5 gas, 7325 ft.

Licking County—Gail Earley, Gardner 4, 0.3 gas, 2622 ft, Settles Oil, Shannon 7, 11 bbls 718 ft. J. R. Shannon et al, Shannon 7, 2 bbls, 731 ft.

Loraine County—Edson & Sons, Johnson 1, abnd 2455 ft, McMillen Co., Youngeberg 2, 0.73 gas, 2316 ft.

Medina County—William Dempsey, Neal 1, abnd 3458 ft, Harry Dempsey, Haas 1, 1.5 gas, 3370 ft, Ohio Fuel, Kellogg 1, 1.56 gas, 3582 ft.

Meigs County—Roush Bros., Cross 1, 0.07 gas, 3250 ft. Fleming et al, Burford 4, 0.3 gas, 903 ft, Ray Proffitt et al, Thoma 1, 0.1 gas, 3290 ft. Ohio Fuel, Rumfield 2, 0.22 gas, 505 ft.

Monroe County—Spangler & McCort, Morris 1, 0.1 gas, 1855 ft. Hague Gas Co., Hines 4, 0.23 gas, 650 ft.

Morgan County—Industrial Gas Co., Bailey 1, 2.6 gas, 4257 ft.

Muskingum County—Industrial Gas Co., Enoch 7, abnd 4193 ft, Gandee 1, 0.5 gas, 4285 ft. Columbian Clay & Mineral Co., James 1, abnd 4740 ft.

Noble County—Gerst & Moseley O. & G. Co., Schott 3, abnd 571 ft. F. W. Fassett, Hayes 6, 5 bbls, 245 ft. Hayes 9, abnd 255 ft.

Perry County—Palm Oil Corp. et al, Hamm 1, 20 bbls, 2815 ft. Preston Oil, Thompson 1, 155 bbls, 3283 ft, Smithley 1, 92 bbls, 3190 ft, Smitlet 1, 92 bbls, 3190 ft.

Stark County—White Estate, Holbenor 2, 0.94 gas, 4559 ft, Brendel Prod. Co., Hoover 1, abnd 4685 ft.

Tuscarawas County—Status Dev. Co. 33, 1.25 gas, 4862 ft, Brendel Prod. Co., B. S. of America, 0.5 gas, 4990 ft.

Washington County—William Dempsey, Heckathorn 6, 4 bbls, 1310 ft, Hall Farm Oil & Gas Co., Hall 3, 0.6 gas, 1106 ft, Beardmore Oil Co., Cline 6, 0.15 gas, 1980 ft.

Wood County—Nelson Pember, Shaw 1, 80 bbls, 1349 ft.

OLD WELL DRILLED DEEPER

Monroe County—Pure, Martin 3, 1 bbl, 1328 ft.

West Virginia

COMPLETIONS

Boone County—Owens, Libby, Owens, Bull Creek 18, 0.18 gas, 4409 ft. Pure, LaFollett, Robson & Pritchard 1, 0.13 gas, 3327 ft.

Clay County—Pittsburgh & W. Va., Wilson 7840, 0.07 gas, 2351 ft.

Hancock County—R. J. Braden Co., Ward 14, 2 bbls, 1097 ft.

Jackson County—Columbian, Davis 1, abnd 5065 ft, Carney 1, 14.67 gas, 5259 ft, Weekley 1, 0.38 gas, 5089 ft, Bartlett 1, 4.16 gas, 5362 ft.

Kanawha County—Godfrey L. Cabot, Taylor 1, 18.5 gas, 5440 ft, Putnam Co., 1.52 gas, 5099 ft.

Lincoln County—Jefferson Gas Co., Miller 2, 0.19 gas, 3826 ft.

Putnam County—Hunter Gas Co., Johnson 1, 0.18 gas, 2373 ft.

Ritchie County—Watson Oil & Gas, Haddox 2, 7 bbls & 0.12 gas, 2077 ft.

OLD WELLS DRILLED DEEPER

Clay County—Thompson Gas Co., Thompson L. & C. Co., 0.17 gas, 2035 ft.

Lincoln County—United Fuel, Miller 4926, 0.19 gas, 3158 ft.

Pennsylvania

COMPLETIONS

Clarion County—Owens-Illinois, Kuhns 1, abnd, 2926 ft.

Greene County—Charles Orndoff et al, Yeager 2, 0.25 gas, 3402 ft.

Washington County—William Hess et al, Paden 3, 0.49 gas, 1528 ft.

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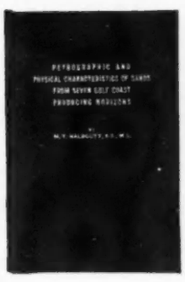

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Men In The Industry's News

JAMES E. HUGHES, priority specialist from the Office of Petroleum Coordinator, Washington, will discuss priority orders as they affect the oil industry at a meeting of the East Texas Chapter of the American Petroleum Institute at 8 p.m., February 20. The meeting will be held at the Kilgore high school auditorium and will follow a dinner at 6:30 p.m. at the Kilgore Hotel honoring guests.

Jay Coleman, API chapter secretary, called attention of members to the fact that this will be the chapter's first meeting in 1942.

Also on the program will be a short talk by Julian Capers, coordinator of civilian defense from the San Antonio office.

S. D. KIRKPATRICK, editor of Chemical and Metallurgical Engineering, will speak on "Chemical Industry Under Arms" at the meeting February 17 of the Southeastern Texas Section of the American Chemical Society, at Port Arthur, Texas. L. O. Crockett, Gulf Oil Corporation, Port Arthur, is in charge of arrangements for the dinner.

VIC E. BAUM, production superintendent for Ryan Consolidated Petroleum Corporation, Dallas, has resigned to take charge of Helmerich & Payne, Inc.'s drilling and production operations in Texas, New Mexico and Louisiana with headquarters at Fort Worth.

PAUL F. BARNHART, after several years service with Barnsdall Oil Company, has resigned to join Frank and George Frankel, oil producers, Houston. His duties as engineer for this firm's production will carry him to the Tinsley field in Mississippi, Magnolia and Midway in Arkansas, and Conroe, East Texas, Sulphur Bluff, Amelia, Heyser and Manvel fields in Texas.

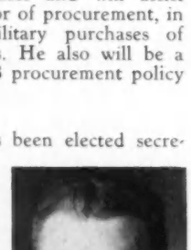
Barnhart attended Texas A. & M. College and University of Oklahoma, receiving a B.S. degree in petroleum engineering from the latter school in 1937. He was employed by the Public Service Corporation of Mississippi in 1931-32, assisting in surveying, construction and maintenance work of gas pipe line and distribution systems. He was employed by Barnsdall Oil Company as roustabout in July, 1936, in Oklahoma City field. He worked in production department until transferred to the Gulf Coast and South Texas district, October, 1937, as district engineer and assistant production superintendent. During the past 4 years he assisted in supervising the drilling and completing of more than 90 wells in 18 fields of the Gulf Coast and South Texas, as well as assisted in handling producing problems of some 200 wells in the area.

CHARLES T. REICHERT, recently was appointed director of materials for District 5, Office of Petroleum Coordinator, by Deputy Coordinator Ralph K. Davies. Reichert's first experience in the oil industry came when he worked as a roustabout in the San Joaquin Valley fields of California. For 2 years he was employed by Associated Supply Company, and then, in 1917, became connected with The National Supply Company. He was associated with this company for 16 years, serving in various capacities, including that of engineer in charge of research on absorption plant methods.

Reichert became general manager of sales for Grant Oil Tool Company of Los Angeles in 1933. The following year he engaged in general sales activity for Petroleum Equipment Company of Los Angeles, specializing in field-store operations, and in 1935 returned to The National Supply Company as sales engineer and manager of the production equipment division. His headquarters will be in the Subway Terminal Building, Los Angeles.

JAMES MACPHERSON, Larkspur, California, from 1919 to 1934 connected with Standard Oil Company of California and its subsidiary companies and now on leave from California Arabian Standard Oil Company, of which he is secretary-treasurer, was appointed last week to be a deputy director of the division of purchases of WPB, and assigned to the procurement division of the Treasury Department. MacPherson will represent the WPB division in the Treasury's handling of lend-lease purchases and will assist Clifton Mack, director of procurement, in coordinating non-military purchases of government agencies. He also will be a member of the WPB procurement policy committee.

C. W. GAUTIER has been elected secretary-treasurer of Maintenance Engineering Corporation, Houston, and placed on the board of directors of the company, effective February 1. His election follows the death January 14 of L. J. Burda, whose position he had filled through the latter's extended illness. Gautier joined the Maintenance Engineering Corporation staff 14 years ago.



ROBERT GROSJEAN, former geologist with Magnolia Petroleum Company in the Southwest, is now with Brown & Wheeler, Inc., Houston.

ERNEST K. PARKS is chairman of the program committee, Pacific Coast District, American Petroleum Institute, Division of Production, to be held March 10 at the Biltmore Hotel, Los Angeles. Parks entered the oil industry in 1919, becoming associated with the Bureau of Mines at Denver. He participated in petroleum engineering work undertaken by the Rocky Mountain Petroleum Association in Wyoming. Leaving field work to take up studies at Stanford University, he was graduated, and in 1924 joined the engineering department of Standard Oil Company of California at San Francisco. For five years he was active in the department of economics. In 1929 he was transferred to Taft as petroleum engineer and later specialized upon observation and application of depth pressures at Kettleman Hills. In 1934 he directed production engineering work in Southern California. Currently he is active as a consultant with headquarters at Los Angeles.

J. M. CHARLTON, lease man for Standard Oil Company of Texas, Houston, addressed petroleum engineering students at Texas A. & M. College February 5 on the qualifications of a successful lease buyer.

G. E. ARCHIE of Shell Oil Company gave a paper on "The Electrical Resistivity Log as an Aid in Determining Some Reservoir Characteristics" before the Houston Geological Society, February 12.

A. R. FOSDICK, former geologist for W. P. Luse Petroleum Company, Dallas, has joined Southwood Oil Company, Dallas, as its resident geologist in the new Midway field, Arkansas.

ALLEN GRANBERRY THURMAN, 59, Shreveport oil operator, died in Shreveport, February 10.

GEORGE N. McPHEE, 59, who had been engaged in oil operations in Colorado, Wyoming and Arizona, died in Shreveport, February 11, after an extended illness. He was a native of Prince Edward Island, Canada.

H. H. COLLETON, formerly chief gauger at Ada, Oklahoma, has been promoted to district foreman for the Stanolind Pipe Line Company at Wink, Texas.

GEORGE STEVENSON, sales engineer, has been appointed assistant manager of American Meter Company's Pacific Coast factory and sales service with headquarters in Los Angeles.

ALLEN B. HAND recently was appointed secretary-treasurer of the Petroleum Industry War Council. He has been engaged in the oil industry for 30 years, last with Union Oil Company of California as assistant comptroller. He resigned to enter business for himself in 1939, making efficiency and cost studies for producing and refining companies, modernizing accounting systems and working in connection with petroleum bankruptcy matters, also engaging in brokerage of crude oil and products, transport trucking and wholesale distribution to filling stations. He was drafted in June, 1941, by the Office of Price Administration as temporary consultant on oil matters, subsequently becoming chief of the petroleum unit of the OPA fuel section. He was "borrowed" by the Office of Petroleum Coordinator in August for special work in the transportation division. He was made assistant director of transportation in October, and appointed secretary-treasurer of the council in January, 1942.

JOHN T. HAYWARD, chief engineer of Barnsdall Oil Company, will in the future devote his time to Barnsdall Research Corporation, of which he is vice president. K. W. Haley assumes Hayward's duties as chief engineer of Barnsdall Oil Company.

R. S. KNAPPEN, Gulf Oil Corporation, Tulsa, spoke on "Military Geology" before Fort Worth Geological Society. Knappen, a geologist as well as an engineer, served in World War I with the Engineer Corps.

L. W. BENNETT, Sunray Oil Company, Tulsa, acted as chairman at last week's meeting of oil company tax experts from Oklahoma and Kansas. The dinner meeting featured two speakers conversant with these problems.

MORE READERS
MORE MEN IN THE DRILLING-PRODUCING INDUSTRY SUBSCRIBE TO THE OIL WEEKLY THAN TO ANY OTHER OIL PAPER.
BE SURE TO RENEW YOUR SUBSCRIPTION PROMPTLY

M. C. VAN GUNDY, The Texas Company, Houston, was recently elected chairman of the Southeastern Texas Section, American Chemical Society. Other new officers are: G. R. Gray, Humble Oil & Refining Company, Houston, chairman-elect; L. M. Blenderman, The Texas Company, Port Arthur, vice chairman; E. P. Doremus, Jr., Shell Oil Company, Houston, secretary-treasurer. R. H. Price, Pan American Refining Company, Texas City; A. J. Hartsook, The Rice Institute, Houston; I. S. Cliff, Shell Oil Company, Houston, were elected councillors.

A. E. BALLIN, director of the Tulsa priorities office of WPB spoke to Tulsa Purchasing Agents Association on the general subject of priorities and its influences.

OSCAR HATCHER, who has until recently made his headquarters at Ada, is now subsurface geologist for Mid-Continent Petroleum Corporation, Tulsa.

PIKE HALL of Shreveport is president of Atlas Oil & Refining Corporation, formed to acquire assets of Atlas Pipe Line Corporation, owner of 8-inch trunk lines that extend from East Texas field and El Dorado, Arkansas, to Shreveport, and the Spartan Refining Company, which has a refinery at Shreveport. Ben F. Connally is executive vice president and general manager, and J. L. Polk is secretary-treasurer. Directors are: Hall, Connally, John R. Black, Wm. N. Bonner, Henry D. Boenning, Frank Frankel, W. J. Goldston, L. A. Grelling, Jr., E. F. Hurley, J. R. Munzo, Herman Press, Leon F. Russ, and Grady H. Vaughn.

DR. C. F. RASSWEILER, who joined Johns-Manville last June as director of research, was appointed a vice president of Johns-Manville Corporation recently. He will continue in charge of the company's research and development activities. Johns-Manville's research laboratories are located in Manville, N. J., and are managed by E. R. Williams, who will continue in that capacity.

MILLARD T. KIRK, Natural Gas and Gasoline Department, Phillips Petroleum Company, Bartlesville, has retired after service since 1920.

JOHN A. BIGELOW has been appointed plant protection engineer of Wickwire Spencer Steel Company. Before joining Wickwire Spencer, Bigelow represented a branch of the graphic arts serving a wide variety of industrial accounts. He will supervise protection of the company's seven plants located in Buffalo, New York; Worcester, Clinton and Palmer, Mass.; Mt. Wolf, Penna., and Blue Island, Illinois, including the maintenance of employment records and employe identification.

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ON YOUR MUD BILL
Powdered Chestnut Extract is the only true substitute for Quebracho Extract to reduce water loss, condition your mud cake and keep your mud bill to an absolute minimum.
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Forged Steel UNIBOLT Couplings employ the most efficient sealing means ever designed for high-pressure steam lines, slush pump manifolds, etc. In addition to the high multiplication of bolt pressure (6½ to 1) provided by the 9 degree tapered shelves, a further reduction is accomplished by the use of a 9 degree taper on each side of the seal ring.
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Squeaks from the Bull Wheel

Not Interested

She "Would you like to see where I was operated on for appendicitis?"

He: "No, I hate hospitals."

Following Instructions

This is a story about three fastidious epicures who tried a strange restaurant.

"My steak must be very well done," the first one told the waiter. "See that it is almost burned."

"Mine," said the second, "should be rare—almost bleeding."

"The steak you prepare for me," said the third, "may be medium well done, but tell the chef to be very careful to rub it lightly with garlic just before it is cooked."

The waiter went out into the kitchen. "Joe," he told the cook, "three steaks."

High Voltage

"Say, do you have to see a doctor before you can get liquor in this town?"

"No, afterward."

On the Cuff

Well, little man, what can I do for you?

My mother sent me to get change for a dollar bill, and said she would give you the dollar bill tomorrow.

Extreme Resistance to HEAT
To Fit Any Drum Diameter
For All Types Of Brakes
Will not heat excessively, dust or smoke, even in unusually hard service.

Grizzly Rotary Blocks can be subjected to extremely high temperatures without showing any sign of disintegrating. Due to the special asbestos-friction materials used in their construction; and the absence of cotton or other materials that scorch and burn; excessive heat from any source will not affect their smooth, positive braking action. Special binders that serve as a lubricant positively prevent "dusting" or smoking. Ask your supply dealer about the Grizzly Rotary Block Band Exchange.

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GRIZZLY ROTARY BLOCKS

Giveaway

A judge was pointing out that a witness is not necessarily to be regarded as untruthful because he alters a statement made previously.

"For instance," he said, "when I entered this court today I could have sworn I had my watch in my pocket. But then I remembered I had left it in the bathroom at home."

When the judge got home that night his wife said: "Why all this bother about your watch—sending four or five men for it?"

"Good heavens," said the judge, "what did you do?"

"I gave it to the first one who came; he knew just where it was."

Just Shiftless

"My husband is so careless of his appearance. It seems that he just can't keep buttons on his clothes.'

"Are you sure it's carelessness? Perhaps they are—uh—well, sewed on improperly."

"Maybe you're right. He is terribly careless with his sewing."

On 24-Hour Schedule

"So you never have the last word around your house?"

"Naw, my wife even talks in her sleep."

Out of the Question

In early days of the rough and ready West, old Jake returned East after a lengthy sojourn with the Indians to report that the Red men, to quote his own words, "were powerful fond of whiskey."

"How did you find that out?" he was asked.

"Well," he replied, "there was an old chief out there who offered me everything he had for a pint of whiskey. He offered me his blanket, then his saddle and bridle, and finally his pony, if I would only give him my pint flask."

"Did you let him have it?"

"Heck, no!" exclaimed old Jake with an indignant snort. "I only had one pint left."

Efficiency

"I hear that the chief has discharged the new efficiency expert."

"What for?"

"He put unbreakable glass in the fire alarm boxes."

Dangerous Age

"How old would you say she is?"

"Oh, somewhere in the middle flirties."

A Mouthful?

"Miss Green, do let me help you to more pudding."

"Well thanks. I will take some more, but only a mouthful, please."

"Bella, fill Miss Green's plate."

Changing Times

A small boy returned home from school and told his father he was now second in his class. The top place was held by a girl.

"But surely, John, you're not going to be beaten by a mere girl."

"Well, you see, father, girls are not nearly so mere as they used to be."

Successful Marriage

And is your daughter happily married?

Yassum, she's done got herself a husband who's scared to death of her.

Notes for the Equipment Buyer and User

Bumpers

PATTERSON-BALLAGH CORPORATION

Patterson-Ballagh Corporation has announced an extensive series of safety swivel bail bumpers. The line has been completed so that a swivel bumper is now available for every type of swivel on the market.

Special castings have been developed to fit each make of swivel. Each casting includes a heavy-duty rubber bumper which can be replaced in the event of wear. These bumpers are bolted to the different types of swivel and the castings are contoured to fit the various shapes of swivels.

Arrangements have been made to distribute the bumpers both direct to swivel manufacturers for installation at the factories or for later installation in the field by operators.

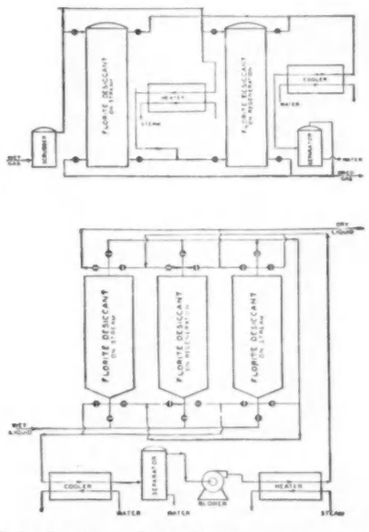
Patterson-Ballagh Bumpers

Drying Agent

FLORIDIN COMPANY

Floridin Company, 179 Liberty Street, Warren, Pennsylvania, has announced "Florite Desiccant," a new granular drying agent for gases and liquids. It has found use in a variety of industrial processes requiring bone-dry gases and liquids, and in many installations where high drying efficiency is not ordinarily demanded. Among the products now being dehydrated are natural gas, propane, gasoline, air, nitrogen and carbon dioxide. It may also be used in breathers for storage tanks and electrical transformers, to dehumidify air in air conditioning systems and to dehydrate refrigerants.

The outstanding characteristic claimed for Florite Desiccant is its ability to maintain a high drying efficiency under conditions that have rendered competitive materials useless. It adsorbs water instantly and will not swell, disintegrate, or appear wet at the end of an adsorption cycle. It is hard, stable, non-corrosive, and non-poisonous. It selectively adsorbs 4 to 20 percent of its weight in water, depending on the particular application, and is regenerated by heating to 300-350° F., it was said.



Dehydration plant for gases, top, and dehydration for liquids.

Boring Bar

GISHOLT MACHINE COMPANY

Gisholt Machine Company, 1273 East Washington Avenue, Madison, Wisconsin, has announced a new double-end boring bar for use with saddle-type turret lathes.

Gisholt Double End Boring Bar

The double-end boring bar fits into the standard flanged tool holder on the turret, then through the turret, and is held on the opposite side by a short holder, having four screws to firmly grip the bar. This makes an extremely rigid bar with large single point cutters, for use with the cross feeding turret.

Pipe Line

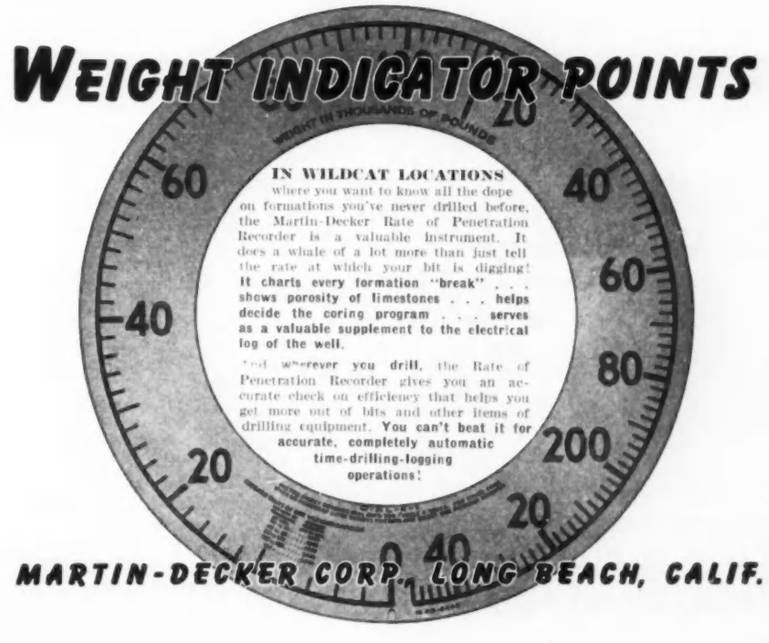
Caterpillar Tractor Company, Peoria, Illinois, has announced "On the Pipe Line Front," a 12-page publication devoted to the red-blooded, hard-hitting pipe-line industry.

Men and machines composing this industry are contributing greatly to the progress of commercial and domestic life all over the world, and this booklet tells the story of how this important work is being done.

Pipe Tools

Beaver Pipe Tools, Warren, Ohio, has issued a 28-page 1942 catalog, together with a 4-page condensed catalog.

The general catalog covers the complete line of portable pipe and bolt cutting and threading machines; portable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WEIGHT IN THOUSANDS OF POUNDS
IN WILDCAT LOCATIONS
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Underwriters' Laboratories, Inc., and U. S. Bureau of Mines have approved these famous lanterns for safe use in Class 1, Group D locations and in methane gas and air mixtures. Powerful 634 candle power forward beam plus light to sides at same time from the same bulb. Twin-bulbs prevent light failure — just flip the switch and second bulb lights instantly. Adjustabe handle and guard.

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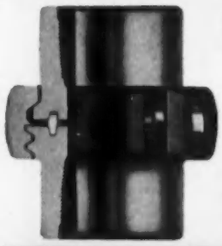

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pipe and bolt cutting and threading power drives and power units; pipe cutting and threading tools, ⅛- to 12-inch; pipe reamers; vises; sawing vises; grooving and beveling tools and threading oil. The book is completely illustrated and detailed information concerning each item in the line is given.

Shovel Crane

Link-Belt Company, 301 West Pershing Road, Chicago, has issued a new 8-page illustrated catalog covering the Link-Belt Speeder LS-60 heavy duty ½-yard crawler shovel, dragline, and crane.

New simplicity, reserve power, easier handling, all welded construction, are features stressed. Illustrations show the machine at work and how it is built.

Working ranges, lifting capacities, clearance dimensions and other pertinent data are given for shovel, dragline, crane, clamshell and trench-hoe operation.

Oil Well Drainage

"Oil Well Drainage," by Stanley C. Herold, is a non-technical presentation of the summarized information gathered on oil reservoirs and their behavior during more than a quarter of a century of exploration and exploitation of oil and gas fields. The findings are presented in a clear, logical and readily understandable style, with a complete index of subjects tying in effectively with a system of paragraph summaries, carried in black type in the margins of each page, to enable ready reference to a desired topic.

The author states at the outset that there are but two types of production, as there are two types of drainage. Examples of each are developed and their behavior in the light of the type under which they fall accurately predicted.

Following the introductory chapter, in which production and drainage types are outlined, the author deals with typical artificial reservoirs, then natural reservoirs, showing how far laboratory equipment may fail of duplicating natural conditions. Reservoir energy is discussed, and with it the function of gas in reservoir performance.

In turn the author discusses and illustrates, with field examples, radius and area of drainage, regional drainage and water encroachment, drainage across property lines and the effects of stratigraphy and structure on drainage.

Other topics accorded separate chapters include the effect of reservoir penetration on drainage. that of multiple zones, of rates of production, and of field development on drainage.

Drainage of wells of all or no gas, injection of water, gas or oil, and types of secondary recovery methods are covered separately, with field examples and forecasts as to the success of such methods in other areas.

Reservoir content, ultimate recovery and reserves, abandoned oil and gas, and curtailment, proration and conservation round out the subject matter of this most adequate presentation of the subject of well drainage, and complete the compilation of usable data of great value.

The book is available through the Book Department of The Gulf Publishing Company, at $5.00 per copy.

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